

CS20-36

Plumbing Fixtures; Vitreous China, Staple

U. S. DEPARTMENT OF COMMERCE

DANIEL C. ROPER, Secretary

NATIONAL BUREAU OF STANDARDS

LYMAN J. BRIGGS, Director

# STAPLE VITREOUS CHINA PLUMBING FIXTURES

SECOND EDITION

COMMERCIAL STANDARD CS20-36

[Supersedes CS20-30]

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PROMULGATION  
of  
COMMERCIAL STANDARD CS20-36  
for  
STAPLE VITREOUS CHINA PLUMBING FIXTURES  
(Second Edition)

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On September 25, 1929, the Manufacturers' Advisory Committee on Vitreous China Plumbing Fixtures, with the approval of the standing committee, adopted a commercial standard for staple vitreous china plumbing fixtures, which was subsequently accepted by the industry and promulgated as Staple Vitreous China Plumbing Fixtures, Commercial Standard CS20-30 (First Revision of Simplified Practice Recommendation R52). On February 10, 1936, the Vitreous China Plumbing Fixture Association submitted recommendations which included several new items and definitions, and a change from the term "regular selection" to "first quality." These recommendations were approved by the standing committee and accepted by the industry for promulgation by the United States Department of Commerce, through the National Bureau of Standards.

The revised standard is effective for new production from September 30, 1936.

Promulgation recommended.

I. J. Fairchild,  
*Chief, Division of Trade Standards.*

Promulgated.

Lyman J. Briggs,  
*Director, National Bureau of Standards.*

Promulgation approved.

Daniel C. Roper,  
*Secretary of Commerce.*

# STAPLE VITREOUS CHINA PLUMBING FIXTURES

(Second Edition)

## COMMERCIAL STANDARD CS20-36

### SECTION I.—REQUIRED PROVISIONS

#### GENERAL

1. The nomenclature, definitions, and grading rules given herein are standard for all vitreous china plumbing fixtures.

2. Dimensions and general practices given herein are standard for staple vitreous china plumbing fixtures as listed herein.

3. Types and sizes of water-closet bowls, tanks, lavatories, urinals, service sinks, and other vitreous china plumbing fixtures not specifically mentioned shall be considered as special. The line drawings herein contained are only for the purpose of showing dimensions and are not to indicate designs.

4. As a standard practice, all manufacturers shall plainly indicate standard types and sizes of staple vitreous china plumbing fixtures conforming to the commercial standard in any future catalogs. (The use of boldface type or footnotes is recommended.)

#### GRADING RULES

5. Vitreous china plumbing fixtures shall be graded in accordance with the grading rules as given herein.

6. These fixtures are made of materials mined from the earth, containing metallic elements and foreign matter which cannot be entirely eliminated in practice. As they are made and finished by hand, and subjected to a high degree of heat, it is an accepted fact that they cannot be regularly produced free from unimportant variations and minor blemishes.

7. Careful inspection is employed in each department of manufacture and each of the imperfections listed herein as acceptable under the "first quality" grading is caused by some unavoidable condition in the manufacturing process. Perfection is not guaranteed nor is it commercially possible.

8. The blemishes permitted under the grading rules do not affect the utility value of the fixture or make it unsafe from a health or sanitary point of view.

9. It is not intended that inspectors shall measure or count any blemishes except in case of doubt, since, with practice, dimensional limits and numbers can be readily gaged by eye.

10. The terms "first quality" and "culls" shall be used to replace the terms "grade A" and "grade B" for grading vitreous china plumb-

ing fixtures, as it is recognized that the terms "grade A" and "grade B" are confusing to the trade and to the consumer.

11. Ware which grades below "first quality", but which is not unsafe from a health or sanitary point of view, shall be classified as "culls."

12. Ware containing defects or blemishes, making it unsafe from a health or sanitary point of view, shall be considered unsalable.

### NOMENCLATURE AND DEFINITIONS

- Blister*.—A raised uncolored portion of the surface  $\frac{1}{32}$  (0.031) inch and less than  $\frac{1}{8}$  (0.125) inch in maximum dimension.
- Large blister*.—A raised uncolored portion of the surface  $\frac{1}{8}$  (0.125) inch to  $\frac{1}{4}$  (0.25) inch, inclusive, in maximum dimension.
- Bubble*.—An uncolored raised portion of the surface or a sand speck smaller than  $\frac{1}{32}$  (0.031) inch in maximum dimension.
- Craze*.—Fine cracks in the glaze.
- Culls*.—Serviceable ware which grades below "first quality" but which is safe from a health or sanitary point of view.
- Discoloration*.—A colored spot over  $\frac{1}{4}$  (0.25) inch in maximum dimension, or a sufficient number of specks or spots to give the effect of a change in color.
- Dull or eggshell finish*.—Dead or flat finish. Undeveloped glaze. A semiglazed finish with numerous very fine pinholes or slightly matted in appearance. Not glossy.
- Dunt*.—A hairline fracture extending through the body, and due to strains set up in the process of manufacture.
- Exposed body*.—Unglazed portion  $\frac{1}{16}$  (0.063) inch in maximum dimension or over.
- Finish*.—Texture and condition of surface other than color.
- Fire check*.—Fine shallow crack in the body not covered with glaze. (When sufficiently covered with glaze as to be easily cleaned, it is not detrimental.)
- First quality*.—First class ware in conformity with the limitations of the grading rules.
- Fittings*.—Adjuncts to a fixture subject to selection or option of the purchaser, as, for example, faucets and waste plugs.
- Fixture*.—The china piece only, without "trimmings" and/or "fittings."
- Flushing surface*.—The surface which may be wet during the operation of the fixture.
- Pinhole*.—Unglazed portion of body, or small hole under  $\frac{1}{16}$  (0.063) inch in maximum dimension.
- Polishing mark*.—A spot not larger than  $\frac{3}{8}$  (0.375) inch in maximum dimension where some minor blemish has been ground off and the surface polished.
- Pottery square*.—A square 2 inches on each side. For grading purposes may be a 2-inch square hole cut in a small sheet of any flexible material, such as rubber or paper, for convenience in sliding over irregular surfaces to determine segregation.
- Projection*.—A raised uncolored portion of the surface over  $\frac{1}{4}$  (0.25) inch in maximum dimension.
- Roughing-in measurement*.—Dimension from finished wall or floor to center of waste or supply opening.

*Segregation.*—More than four spots, blisters, or pinholes in any “pottery square.”

*Speck.*—A colored portion less than  $\frac{1}{32}$  (0.031) inch in maximum dimension. Specks less than  $\frac{1}{100}$  (0.01) inch in maximum dimension, unless in sufficient number to form a discoloration, are not counted.

*Spot.*—A colored portion of the surface  $\frac{1}{32}$  (0.031) inch and less than  $\frac{1}{8}$  (0.125) inch in maximum dimension.

*Large spot.*—A colored portion  $\frac{1}{8}$  (0.125) inch to  $\frac{1}{4}$  (0.25) inch, inclusive, in maximum dimension.

*Spud.*—Threaded brass connection inserted in the vitreous china-ware.

*Streak.*—A slight defect in the finish giving an appearance similar to painters’ brush marks.

*Tank.*—The term tank shall be applied to any vitreous china fixture which contains water to flush another plumbing fixture.

*High tank.*—Designed to be mounted with bottom more than two (2) feet above the floor.

*Low tank.*—Designed to be mounted with bottom two (2) feet or less above the floor.

*Trap.*—A device so constructed as to prevent the passage of air through a fixture without materially affecting the flow of sewage or waste through it.

*Trimings.*—Parts, other than china, regularly supplied with a fixture, as, for example closet spuds, wall hangers, tank trim—do not include “fittings.”

*Visible surface.*—The surface readily visible after installation of the fixture to an observer in normal standing position.

*Vitreous china plumbing fixtures.*—The term “vitreous china” shall be applied only to such plumbing fixtures as will pass the following red-ink test:

A fractured piece of material taken from any part of a vitreous china plumbing fixture, after being immersed in red anilin ink of good color strength for one hour, shall not show any discoloration through the glaze and shall not show absorption, when broken, to a depth greater than  $\frac{1}{8}$  inch below the surface of fracture at any point.

*Water area.*—Elliptical area of the still water in the water-closet bowl, when filled to the top of the dam.

*Water-closet bowl.*—The term “water-closet bowl” is the accepted general term applicable to such fixtures whether singly or part of a “combination.”

*Reverse trap water-closet bowl.*—The term “reverse trap” shall be applied only to water-closet bowls having back supply (except for use as part of integral or close-coupled combination); integral flushing rim; a minimum water seal of  $2\frac{1}{2}$  inches; a minimum water area of  $8\frac{3}{4}$  by  $7\frac{1}{2}$  inches; a siphon trap way at the rear of closet which shall pass a  $1\frac{1}{2}$  inch diameter solid ball; and a minimum weight of 38 pounds.

*Reverse trap water-closet bowl, with jet.*—Same as reverse trap water-closet bowl, with jet added.

*Siphon-jet water-closet bowl.*—The term “siphon jet” shall be applied to water-closet bowls having top supply (except for use as part of integral or close-coupled combination); integral flushing rim and jet; a minimum water area of 12 by 10 inches;

a minimum depth of seal of 3 inches; a reverse siphon trap way which shall pass a 2½-inch diameter solid ball; minimum horizontal overall dimensions of 14 by 23 inches; and a minimum weight of 46 pounds.

*Wash-down water-closet bowl.*—The term “wash down” shall be applied to water-closet bowls having back supply (except for use as part of integral or close-coupled combination); integral flushing rim, a minimum water area of 8 by 7 inches; a minimum water seal of 2½ inches; a siphon trap way at the front of closet which shall pass a 1½-inch diameter solid ball; and a minimum weight of 34 pounds.

*Wash-down water-closet bowl, with jet.*—Same as wash-down water-closet bowl, with jet added.

*Water-closet combination.*—The term “water-closet combination” shall be applied to a “water-closet bowl” with means for flushing. The following names of classes of water-closet combinations shall be further qualified by designating the type of water-closet bowl involved—as “Direct Flushing Valve *Syphon-Jet* Water-Closet Combination”, or “Direct Flushing Valve *Reverse Trap* Water-Closet Combination.”

*Close-coupled water-closet combination.*—“Water-closet bowl” with separate tank which is secured to and supported by the “water-closet bowl.”

*Direct flushing valve water-closet combination.*—“Water-closet bowl” with direct flushing valve.

*High-tank water-closet combination.*—“Water-closet bowl” with separately supported “high tank.”

*Integral water-closet combination.*—Single piece of china comprising “water-closet bowl” and tank.

*Staple water-closet combination.*—“Water-closet bowl” and low separately supported tank, the bottom of which is mounted with respect to the “water-closet bowl” approximately as indicated in figures 2 to 4 herein.

*Wavy finish.*—A defect in the finish having the appearance of numerous runs in the glaze; irregular or mottled.

*Well hole.*—A well hole or pocket, open at top, formed inside a water-closet bowl at the entrance to the trap.

#### METHOD OF GRADING WATER-CLOSET BOWLS

13. Examine the well hole closely for excess glaze, spots, blisters, pinholes, etc. With eyes about 2 feet directly above rim, rock the bowl first to one side and then the other to an angle of about 45°, then tilt backward at the same angle, noting only the defects which can be observed in those positions. Minor blemishes which are not observed in this operation are assumed to be on unseen surfaces. Examine the remainder of the bowl for dunts, craze, or other serious defects.

14. Water-closet bowls are graded in accordance with the maximum blemishes listed. (See table 1.)

15. Bowls having more than the maximum grading limit permissible for “first quality” on any one blemish, but safe from a health and sanitary point of view, shall be classified as “culls.”

TABLE 1.—Water-closet bowls

Location	Blemish or defect	First quality
General.....	{ Dull or eggshell finish.....	Not over 4 square inches.
	{ Wavy finish.....	Not more than 4 square inches.
	{ Excess glaze.....	Not more than 1/4 inch thick in well.
	{ Warpage.....	Not noticeably warped when seat is attached.
	{ Large blisters.....	Not more than 2.
	{ Dunts.....	None allowed.
Flushing surface.....	{ Projections.....	Do.
	{ Exposed body.....	Do.
	{ Unglazed fire check.....	Do.
	{ Spots, blisters, and pinholes.....	No segregation; a total of not over 10.
Visible surface.....	{ Bubbles or specks.....	Not over 10 in one "pottery square", a total of not over 25.
	{ Exposed body.....	Not over 3/4 (0.25) inch on foot; not over 1/4 (0.125) inch on more prominent surfaces (maximum dimension).
	{ Unglazed fire check.....	Not over 1/4 inch long.
	{ Spots, blisters, and pinholes.....	No segregation; a total of not over 10.
	{ Bubbles or specks.....	Not over 5 in one "pottery square", a total of not over 25.

METHOD OF GRADING LOW TANKS

16. Low tanks are installed at a level where blemishes are more readily visible than on water-closet bowls and although less likely to become soiled are graded about as closely for appearance. Tanks and covers are graded separately on an equal basis for segregation of blemishes. The covers shall be limited to about one-half the total blemishes permitted for tanks. No blemishes on the inside surface are counted. Minor blemishes on the outside surface, hidden by the cover, are not counted. Examination should be made with the eyes of the observer about 2 feet from the surface observed.

17. Low tanks are graded in accordance with the maximum blemishes listed. (See table 2.)

18. Low tanks having more than the maximum grading limit permissible for "first quality" on any one blemish, but safe from a health and sanitary point of view, shall be classified as "culls."

TABLE 2.—Low tanks

Location	Blemish or defect	First quality
General.....	{ Warpage.....	Not noticeably warped.
	{ Dunts.....	None allowed.
Visible surface.....	{ Dull or eggshell finish.....	None allowed on front; not over 2 square inches on each side.
	{ Wavy finish.....	Not more than 4 square inches.
	{ Exposed body.....	Not over 1/4 (0.125) inch (maximum dimension).
	{ Unglazed fire check.....	None on front; one each side not over 1/4 inch long.
	{ Spots, blisters, and pinholes.....	No segregation; a total of not over 10.
	{ Bubbles or specks.....	Not over 5 in one "pottery square", a total of not over 25.

NOTE.—Covers showing more than 50 percent of the allowable number of blemishes shown in the above table are to be classified as "culls." See "method of grading low tanks."

## METHOD OF GRADING VITREOUS CHINA LAVATORIES, PEDESTALS, AND LEGS

19. Since lavatories are installed at a level where blemishes are more readily noticeable than on water-closet bowls and tanks, they should be graded more closely than any other vitreous china fixture.

20. Lavatories should be examined with the eyes of the observer about 2 feet from the surface observed.

21. The top of slab, front apron, inside of bowl; and face of back of lavatories with back are most important. Sides should not be subjected to the same rigid inspection.

22. Warpage tests are made by ascertaining the amount of deviation from the horizontal plane of the lavatories determined as follows: The lavatory is placed face down on a level table. If a feeler gage of thickness equal to the specified warpage tolerance will not slide under the lavatory without forcing, the lavatory satisfactorily meets the warpage specification and no further test need be made. If it is observed that the lavatory will rock on two opposite "high" corners, the horizontal plane of the lavatories shall be determined by placing one feeler gage of the specified thickness under one "low" corner and forcing the lavatory down on this gage. If a second feeler gage of the specified thickness will not then slide under the lavatory at any other point, the lavatory is not warped out of the horizontal plane by more than the specified tolerance and satisfactorily meets the warpage specification.

23. Pedestals and legs are graded the same as water-closet bowls.

24. Pedestals and legs are not to be warped out of perpendicular line more than  $\frac{1}{2}$  inch. To be free from rough projections. No exposed body over  $\frac{1}{2}$  inch.

25. Vitreous china lavatories are graded in accordance with the maximum blemishes listed in table 3; any vitreous china lavatory having more than the maximum grading limit permissible for "first quality" on any one blemish, but safe from a health and sanitary point of view, shall be classified as "cull."

TABLE 3.—Vitreous china lavatories

Location	Blemish or defect	First quality
General	Dunts.....	None allowed.
	Craze.....	Do.
	Warpage.....	Warpage of slab out of horizontal plane not to exceed $\frac{1}{4}$ inch on all sizes. (The same allowable deviation to apply to lavatories with back, when attached to wall.)
Service space, top of slab, inside of bowl, and front of apron.	Dull or eggshell finish.....	One allowed; not over $\frac{1}{2}$ inch.
	Exposed body.....	None allowed.
	Unglazed fire check.....	Do.
	Spots, blisters, and pinholes.....	No segregation; a total of not more than 4.
	Bubbles and specks.....	Do.
Face of integral back and sides.	Polishing mark.....	Not more than 2 allowed.
	Dull or eggshell finish.....	One allowed; not over $\frac{1}{2}$ inch.
	Exposed body.....	None over $\frac{1}{2}$ inch; not more than 2 allowed.
	Large blisters.....	Not more than 2 on either side or on back; a total of not more than 3.
	Unglazed fire check.....	None on back; 1 only allowed, which may be on either side.
	Spots, blisters, and pinholes.....	Not more than 3 on back or on either side; a total of not more than 6.
	Bubbles or specks.....	No segregation; a total of not more than 6.

## GRADING RULES FOR OTHER VITREOUS CHINA PLUMBING FIXTURES

26. The grading rules for water-closet bowls shall apply to slop sinks, clinic sinks, and bidets.

27. The grading rules for and method of grading lavatories, pedestals, and legs shall apply to drinking fountains, manicure tables and toilet tables.

28. All vitreous china plumbing fixtures not specifically mentioned in the foregoing shall take the grading rules for water-closet bowls.

## MARKING AND LABELING

29. All vitreous china plumbing fixtures including tank lids shall be plainly and permanently branded for identification with the name or trade mark of the manufacturer.

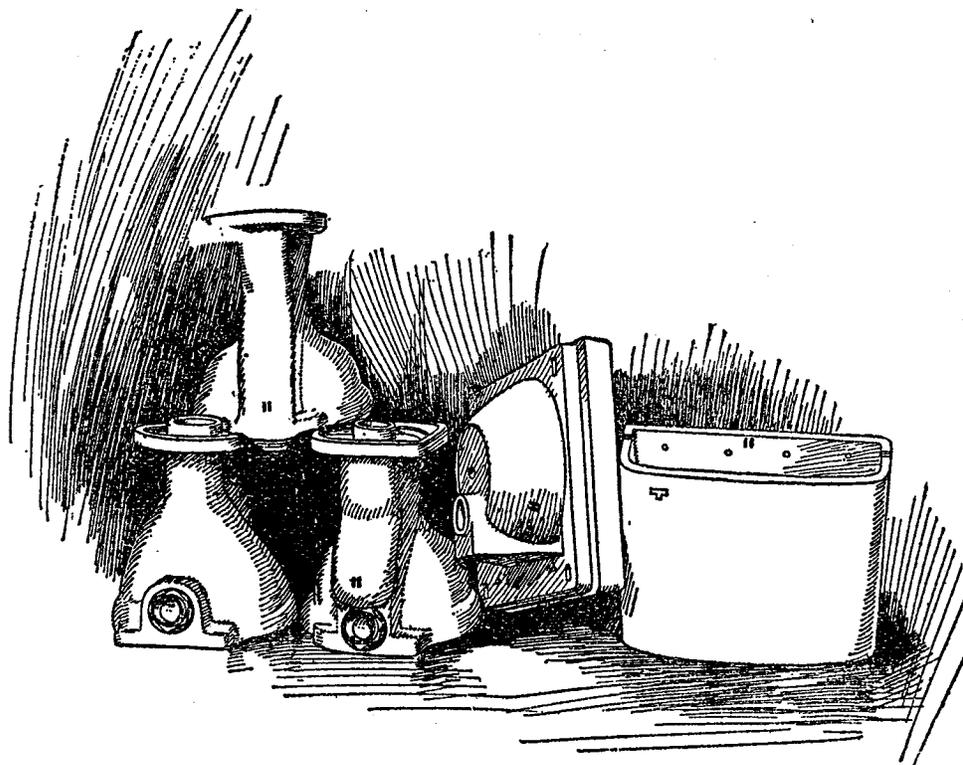


FIGURE 1.—Location and character of marking for culls.

30. The grade of all vitreous china plumbing fixtures shall be clearly indicated thereon, as set forth in paragraphs 31 to 34, inclusive. This mark shall be applied only at the factory by the manufacturers.

31. "First quality" labels shall be used only on such ware as conforms to the requirements for "first quality" as set forth in the grading rules herein and shall contain the following wording:

We certify that this piece of *vitreous china* is first quality ware, graded according to Commercial Standard CS20-36 issued by the National Bureau of Standards of the United States Department of Commerce.

32. The industry has been embarrassed and the consumer victimized by unscrupulous distributors selling "cull" grade fixtures as

"first quality" fixtures. In order to prevent the possibility of this unfair practice all "cull" grade ware shall be indelibly marked by the maker with two parallel lines cut through the glaze into the body of the ware at the location (see fig. 1) recommended by the Manufacturers' Advisory Committee on Vitreous China Plumbing Fixtures. These cuts shall be filled with a bright red varnish or enamel which is resistant to the action of hot water.

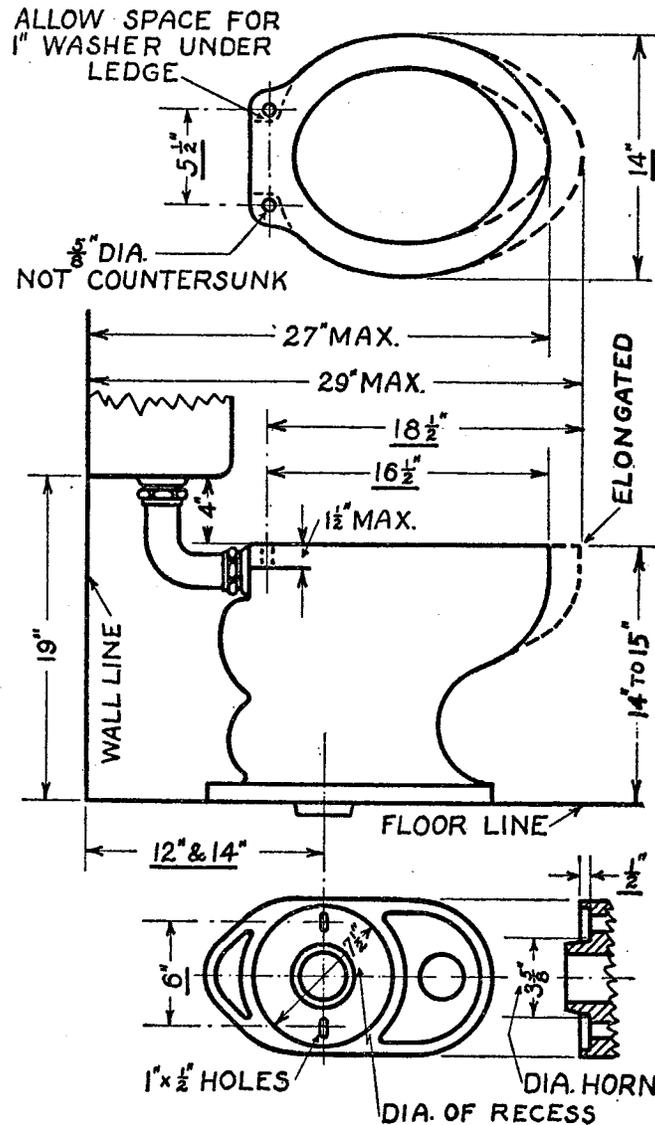


FIGURE 2.—Reverse trap water-closet bowls.

33. All crates containing "culls" shall be marked with two splashes of red on one end of the crate so as to be visible without tearing down stacks.

34. It is recommended that "first quality" ware complying with the dimensional standards herein contained shall bear the following additional label:

The manufacturer guarantees this vitreous china plumbing fixture to meet the requirements of Commercial Standard CS20-36 issued by the National Bureau of Standards of the U. S. Department of Commerce.

This label shall be used only on "first quality" staple ware which meets all the requirements of section I of this commercial standard.

**DIMENSIONAL STANDARDS**

**GENERAL**

35. Where not otherwise specified, a variation of 5 percent from the dimensions indicated herein will be permitted.

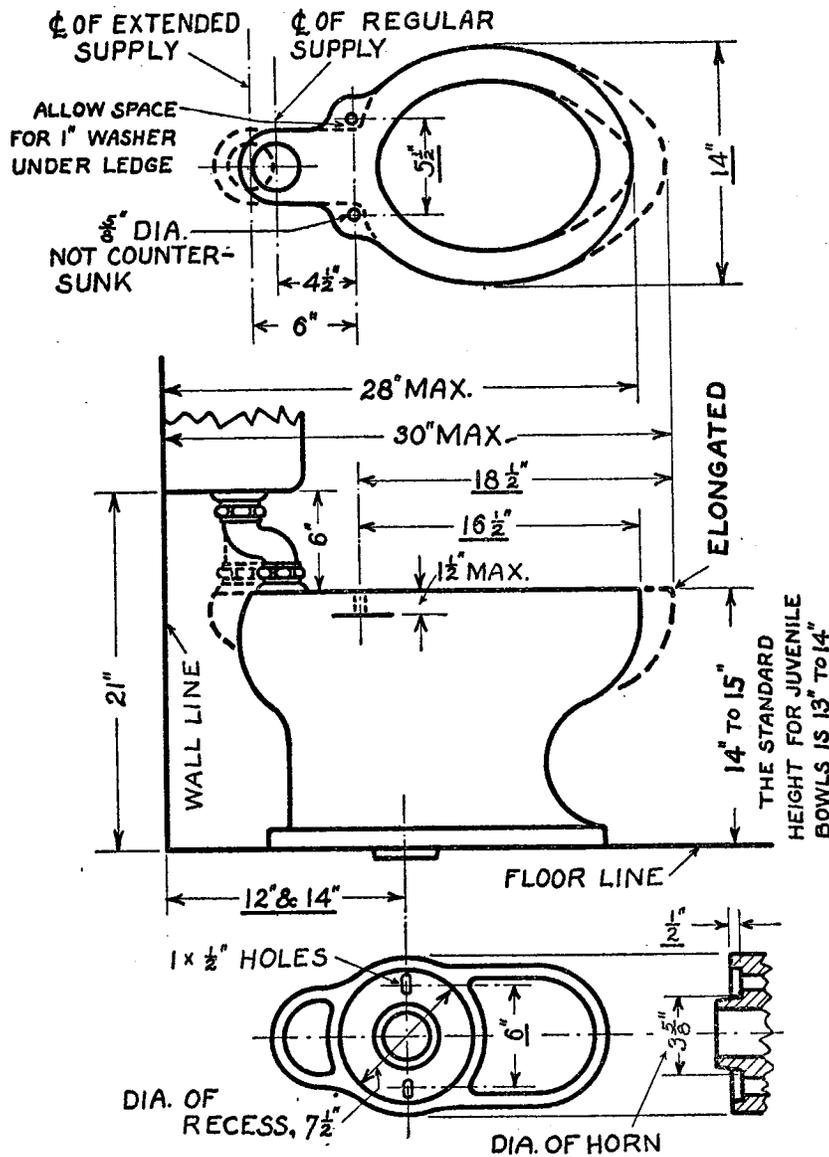


FIGURE 3.—Siphon jet water-closet bowls.

36. Underlined dimensions in figures 2 to 15, inclusive, are identical for all sizes and types of similar items.

37. The depth of seal of integral traps in all vitreous china plumbing fixtures shall be 2-inch minimum, except where greater depths are herein specifically required.

**LAVATORIES**

38. Wherever soap-dish depressions are used on slabs of lavatories, they shall be located on the left hand side as one faces the lavatory

and shall be approximately  $3\frac{1}{4}$  inches long by  $2\frac{1}{4}$  inches wide by  $\frac{1}{8}$  inch deep at the deepest point and shall drain into the bowl.

39. Staple lavatories may have either square or oval bowls.

40. Lavatories having faucet or valve holes punched 4 inches on center (F, figs. 7 to 11, inclusive) shall be considered staple.

41. Faucet shank washers shall not be considered part of the trim for lavatories.

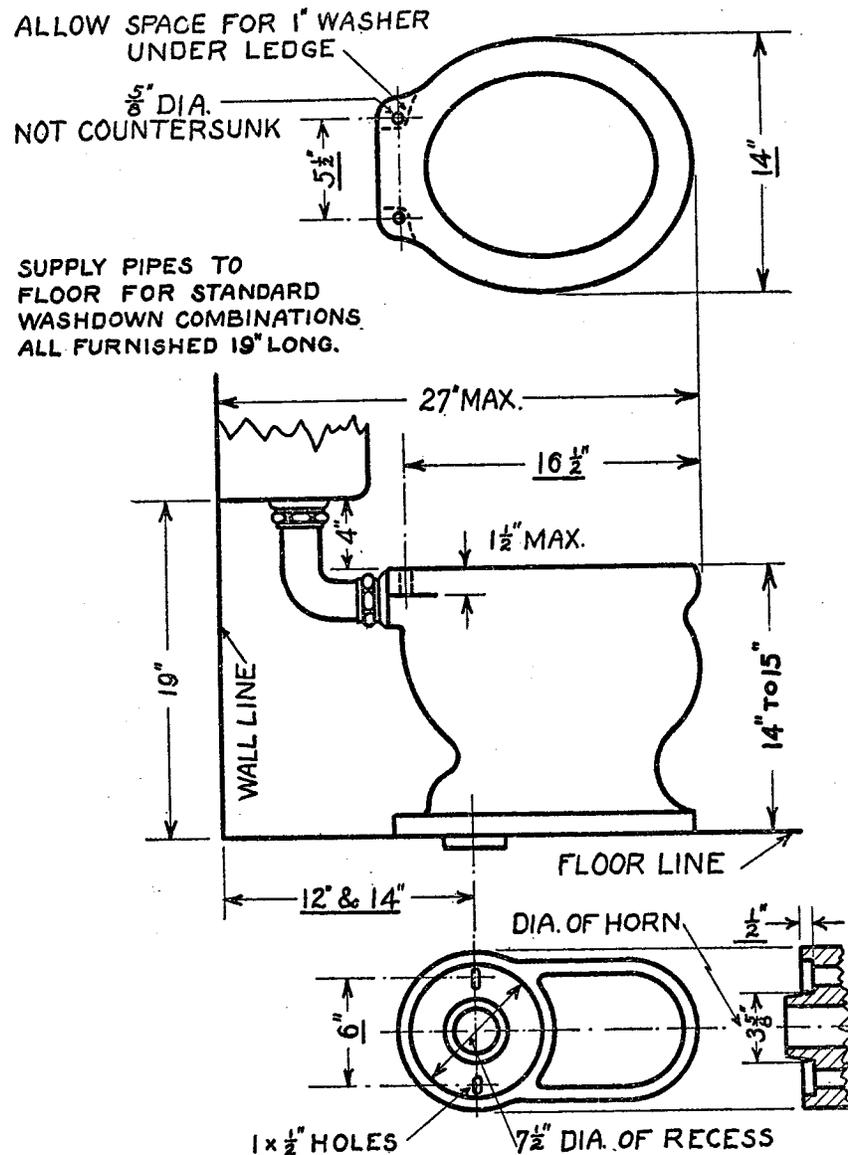


FIGURE 4.—Wash-down water-closet bowls.

42. The overflow point of a lavatory slab shall not be more than  $\frac{1}{2}$  inch above the slab surface at the lowest point of any faucet bearing.

43. The total thickness of lavatories at faucet or valve holes shall be not less than  $\frac{1}{2}$  inch nor more than  $1\frac{1}{4}$  inches.

44. The standard total thickness at outlet of lavatories with overflow shall be 2 inches  $\pm \frac{1}{4}$  inch, and the angle of bevel of outlet shall be approximately  $90^\circ$ .

45. The standard maximum projection of hood on overflow, where used, shall be  $1\frac{1}{4}$  inches for all standard sizes of lavatories.

46. The standard measurement from center of "pop-up" waste opening on slab to inside edge of bowl of lavatories shall be  $2\frac{1}{2}$  inches, except on lavatories having faucet holes punched 4 inches on centers, and on 18- by 15-inch lavatories with back.

TANKS

47. Staple low tanks shall be designated as either "18-inch low tanks" or "20-inch low tanks" according to inside top dimension at the back of the tank (see fig. 6).

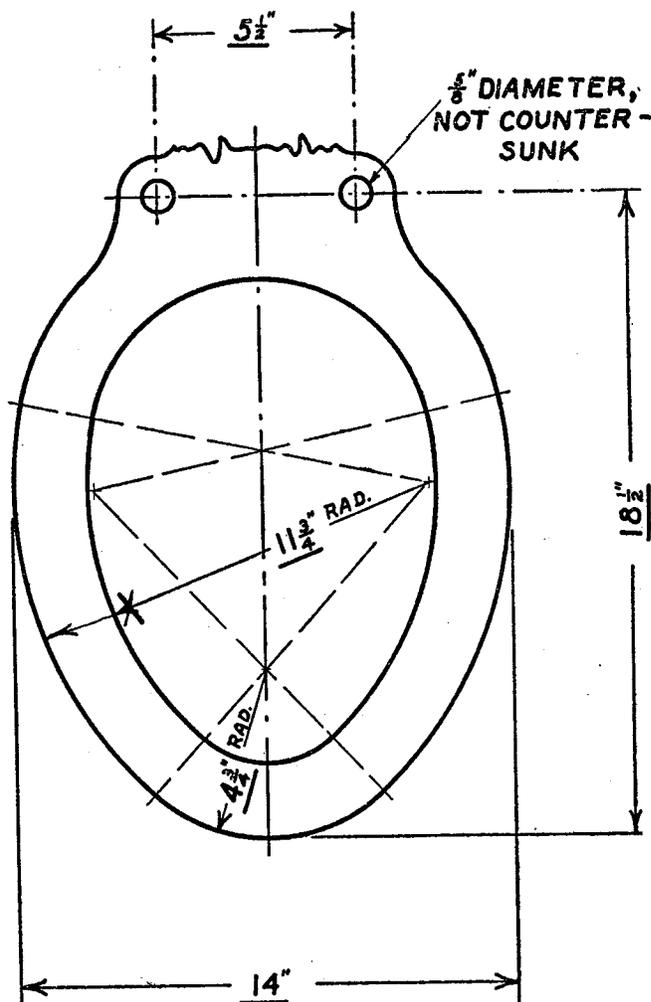


FIGURE 5.—Top contour for elongated water-closet bowls.

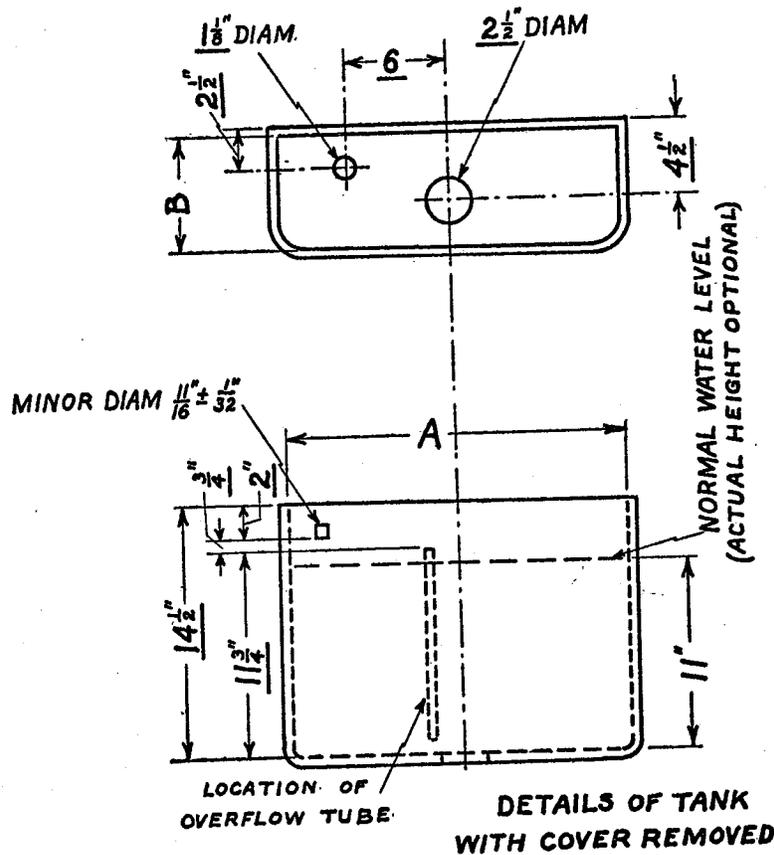
48. Supply pipes to floor when furnished as trim with water-closet combinations comprising low tanks and back supply water-closet bowls shall be  $\frac{3}{8}$ -inch size, 19 inches long, and no less than 14 gage (0.064 inch) wall thickness.

49. Supply pipes to floor when furnished as trim with water-closet combinations comprising low tanks and top supply water-closet bowls shall be  $\frac{3}{8}$ -inch size, 21 inches long, and no less than 14 gage (0.064 inch) wall thickness.

50. The minor diameter of lever hole of low tanks shall be  $1\frac{1}{16}$  inch  $\pm \frac{1}{32}$  inch.

51. The following shall be furnished with "trimmed" staple low tanks:

- One ball valve with refill tube and float ball rod.
- One 4- by 5-inch copper float ball.
- One 2½-inch douglas-pattern flush valve with 1-inch overflow tube 11¾ inches high, measured from inside bottom of tank.
- One single- or double-acting trip lever.
- One 2-inch elbow 5 by 6 inches maximum complete with nuts, brass friction rings, and rubber washers, or
- One 2- by 6-inch straight or offset flush connection complete with nuts, brass friction rings, and rubber washers.
- Two wood screws or hooks for tank.



SIZE	CAPACITY*	A	B
18-INCH	3 1/2 GAL.	18"	6"
20-INCH	4 1/2 GAL.	19 1/2"	6 1/2"

\*ACTUAL FLUSH WITH SUPPLY SHUT OFF

FIGURE 6.—Low tanks.

The following items are optional according to understanding between buyer and seller:

- One 3/8-inch escutcheon, for supply pipe, when furnished.
- One 2-inch spud escutcheon, where required.
- One 3/8-inch by 19-inch or 21-inch supply pipe not less than 14 gage (0.064 inch) wall thickness, when furnished.

#### URINALS

52. Staple stall urinals shall be furnished with integral flushing rim.
53. The standard size for spuds on all stall urinals shall be 3/4 inch.

WATER-CLOSET BOWLS

54. The standard size for spuds on all water-closet bowls shall be as follows: 2 inches for all water-closet bowls operated under low tanks; 1½ inches for all water-closet bowls when operated under high tanks or direct-flushing valves.

55. All water-closet bowls having seat vents, and water-closet bowls having side supply shall not be considered as staple.

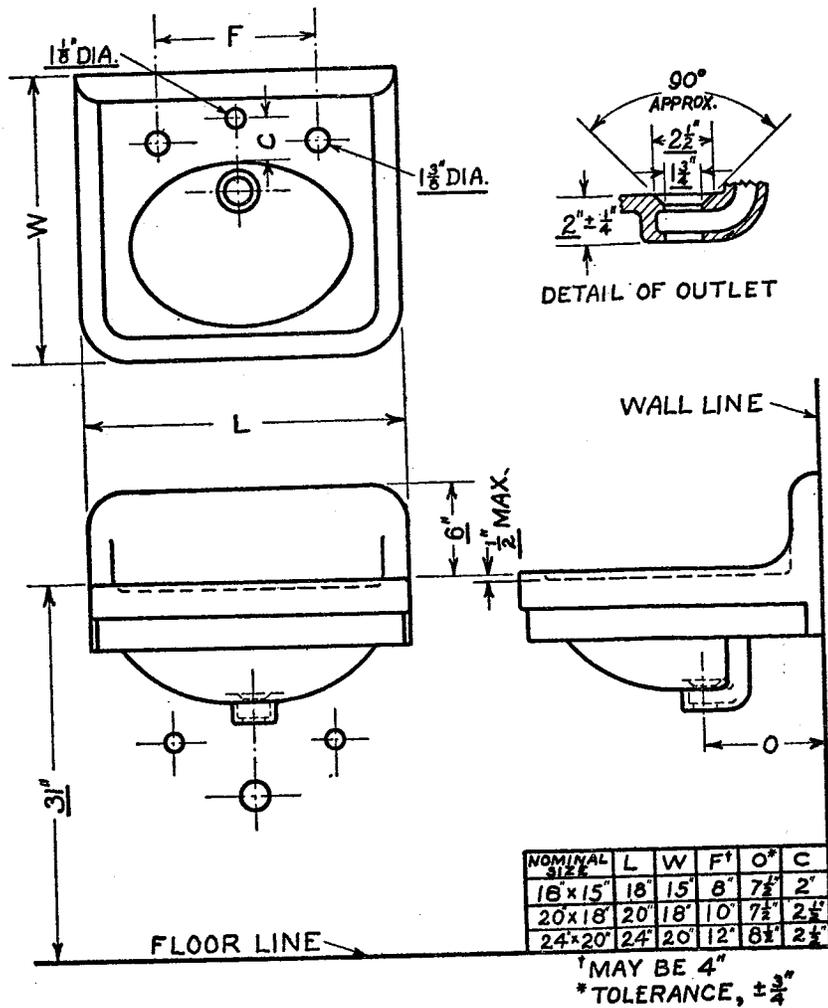


FIGURE 7.—Straight front lavatories, with back.

56. "Juvenile" height water-closet bowls shall be 13 inches minimum, 14 inches maximum from floor to top of rim, and shall have the same top contour as regular bowls (smaller or "baby" bowls are considered special).

STAPLE FIXTURES

STAPLE WATER-CLOSET BOWLS AND TANKS

STAPLE FLOOR OUTLET SIPHON JET WATER-CLOSET BOWL WITH SILENCING CHAMBER:

- Top supply, regular bowl.
- Extended top supply, regular bowl.

Top supply, elongated bowl.  
 Extended top supply, elongated bowl.

**STAPLE FLOOR OUTLET SIPHON JET WATER-CLOSET BOWL:**

Top supply, regular bowl (regular height).  
 Extended top supply, regular bowl (regular height).  
 Top supply, elongated bowl (regular height).

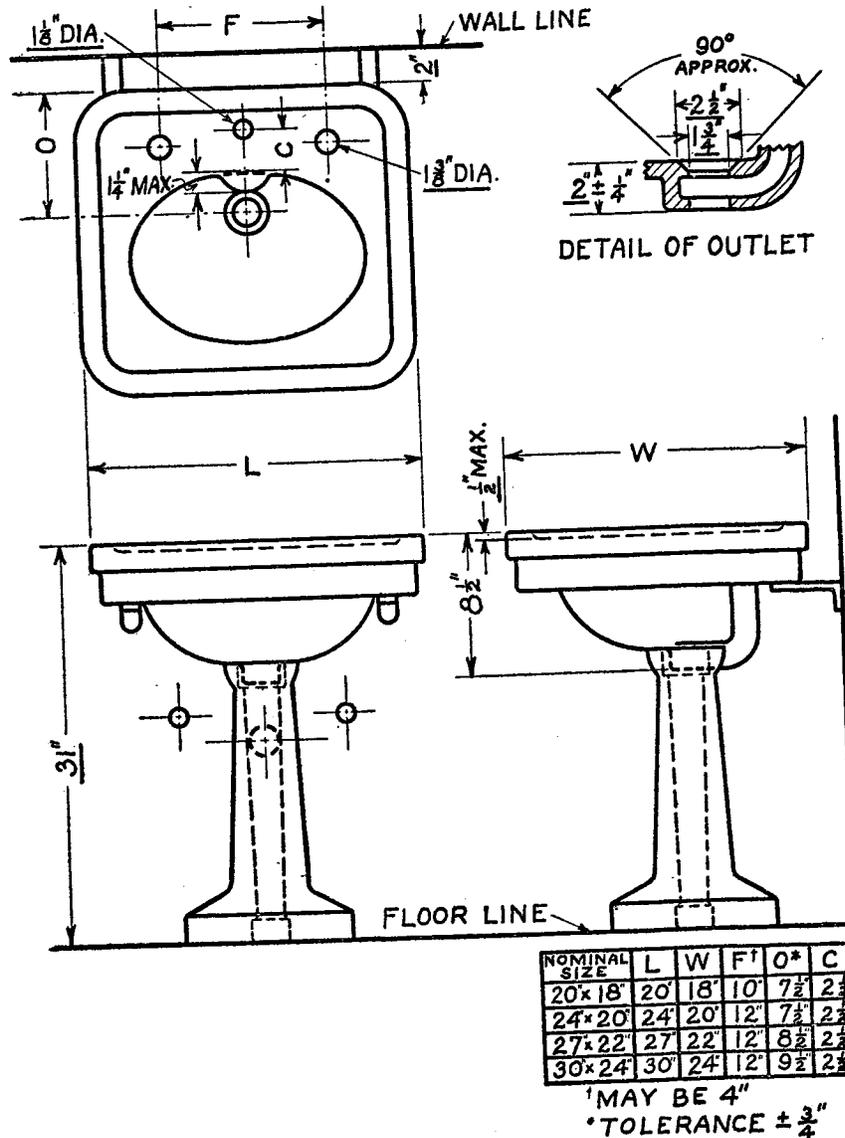


FIGURE 8.—Straight front lavatories, without back.

Extended top supply, elongated bowl (regular height).  
 Top supply, regular bowl (juvenile height).  
 Top supply, elongated bowl (juvenile height).

**WALL HANGING SIPHON JET WATER-CLOSET BOWL:**

Top supply, elongated bowl.  
 Back supply, elongated bowl.

**STAPLE FLOOR OUTLET REVERSE TRAP WATER-CLOSET BOWL:**

Back supply, regular bowl (regular height).  
 Back supply, elongated bowl (regular height).

**STAPLE FLOOR OUTLET REVERSE TRAP WATER-CLOSET BOWL WITH JET:**

- Back supply, regular bowl (regular height).
- Back supply, elongated bowl (regular height).

**STAPLE FLOOR OUTLET WASH DOWN WATER-CLOSET BOWL:**

- Back supply, regular bowl, 12-inch roughing (regular height).
- Back supply, regular bowl, 14-inch roughing (regular height).

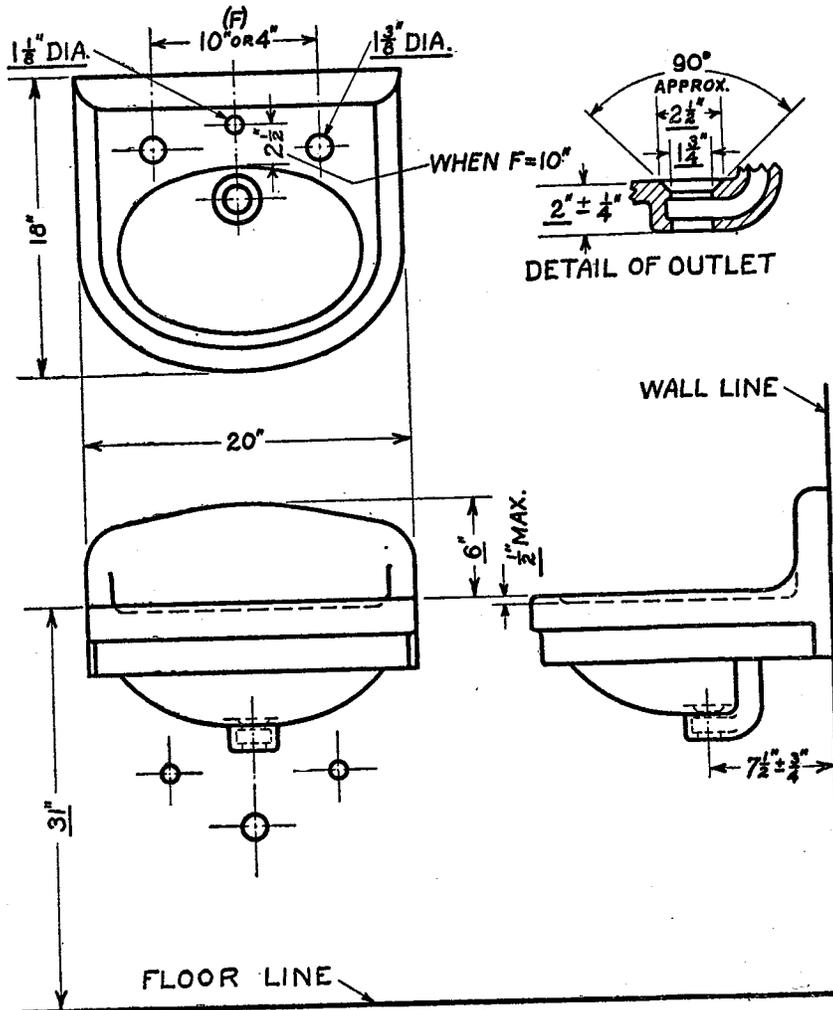


FIGURE 9.—Round front lavatories, with back.

**STAPLE FLOOR OUTLET WASH DOWN WATER-CLOSET BOWL WITH JET:**

- Back supply, regular bowl, 12-inch roughing (regular height).
- Back supply, regular bowl, 14-inch roughing (regular height).

**WALL HANGING BLOW-OUT WATER-CLOSET BOWL:**

- Top supply, elongated bowl.
- Back supply, elongated bowl.

**LOW TANK WITH UPPER LEFT-HAND LEVER:**

- 18-inch low tank (small).
- 20-inch low tank (large).

HIGH TANKS WITH CENTER OUTLET AND OVER TOP SUPPLY, WHERE USED, LEVER SHALL BE ON LEFT SIDE:

- No. 1 (to flush approximately 1½ gallons).
- No. 2 (to flush approximately 2½ gallons).
- No. 3 (to flush approximately 3 gallons).
- No. 4 (to flush approximately 4½ gallons).
- No. 5 (to flush approximately 6 gallons).

## LAVATORIES

57. It is recommended that all lavatories be made with an overflow; that standardized supply and waste punchings be limited (a) for two

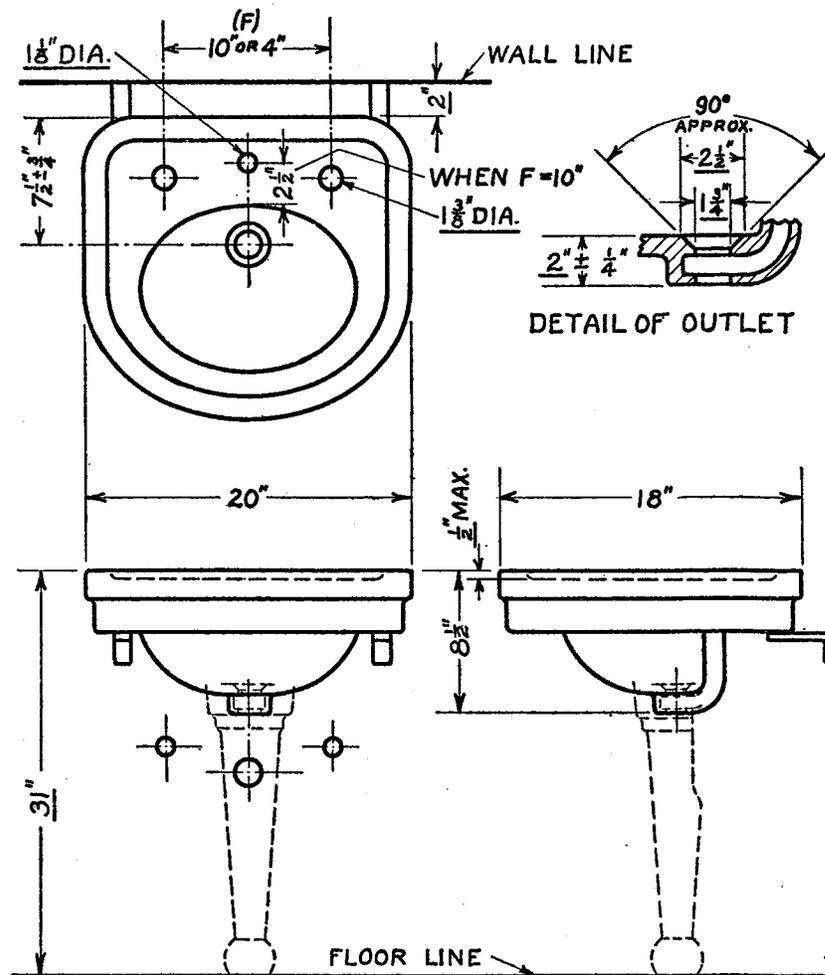


FIGURE 10.—Round front lavatories, without back.

lavatory faucets and pop-up waste or chain-stay or combination fittings; (b) for one-piece supply and pop-up waste.

## STRAIGHT FRONT LAVATORY:

- 18 inches by 15 inches, with back.
- 20 inches by 18 inches, with back.
- 20 inches by 18 inches, without back.
- 24 inches by 20 inches, with back.
- 24 inches by 20 inches, without back.
- 27 inches by 22 inches, without back.
- 30 inches by 24 inches, without back.

**ROUND FRONT LAVATORY**

20 inches by 18 inches, with back.  
20 inches by 18 inches, without back.

**ROUND FRONT CORNER LAVATORY:**

17 inches by 17 inches, with back.

NOTE.—Staple lavatories may have either square or oval bowls.

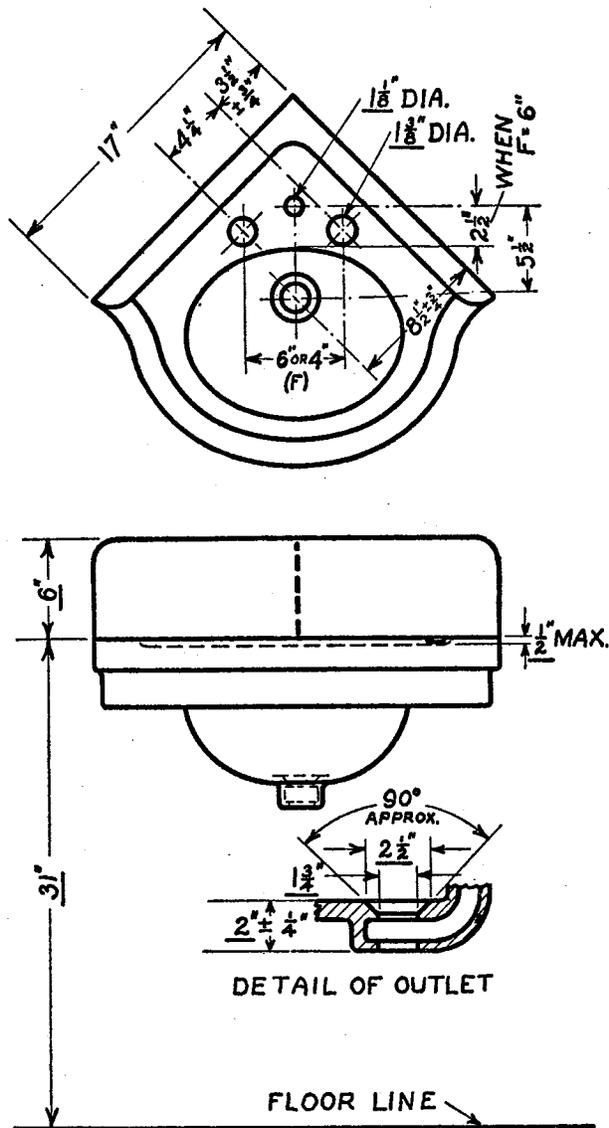


FIGURE 11.—Round front corner lavatory, with back.

**URINALS**

**STALL URINAL, WINGLESS.**

**PEDESTAL URINAL:**

Siphon jet, top supply.  
Siphon jet, back supply.

**SINKS**

**SERVICE SINK, WITH BACK.**

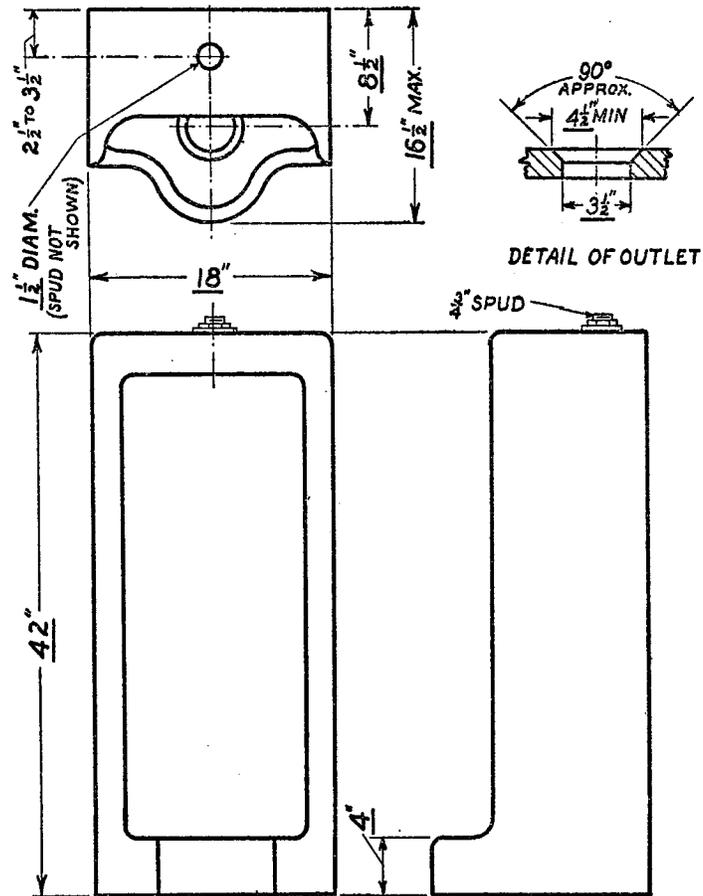


FIGURE 12.—Stall urinals.

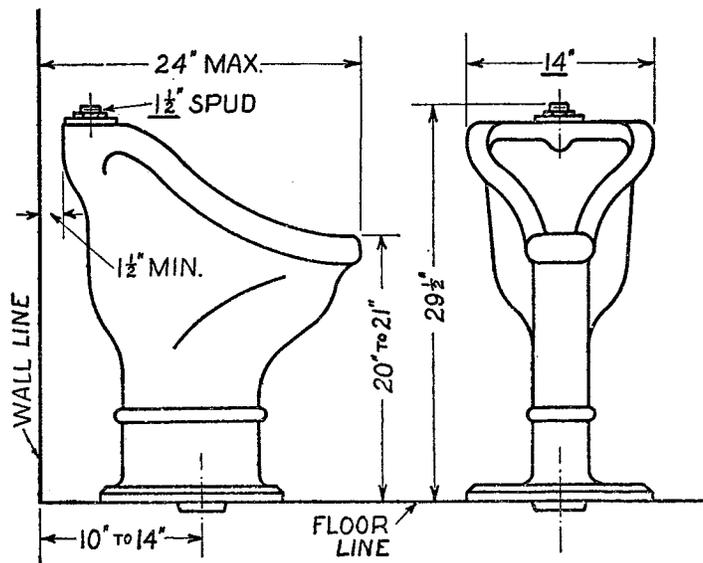


FIGURE 13.—Top supply pedestal urinal.

## SECTION II. RECOMMENDED PROVISIONS

58. Colors for plumbing fixtures, as set forth in Commercial Standard CS30-31, are recommended and especially for monoline manufacturers.

59. It is recommended that the industry work towards one standard roughing-in dimension for water-closet bowls and that this dimension be 12 inches.

60. It is recommended that side supply bowls be discontinued.

61. It is recommended that water-closet bowls with seat vents be discontinued.

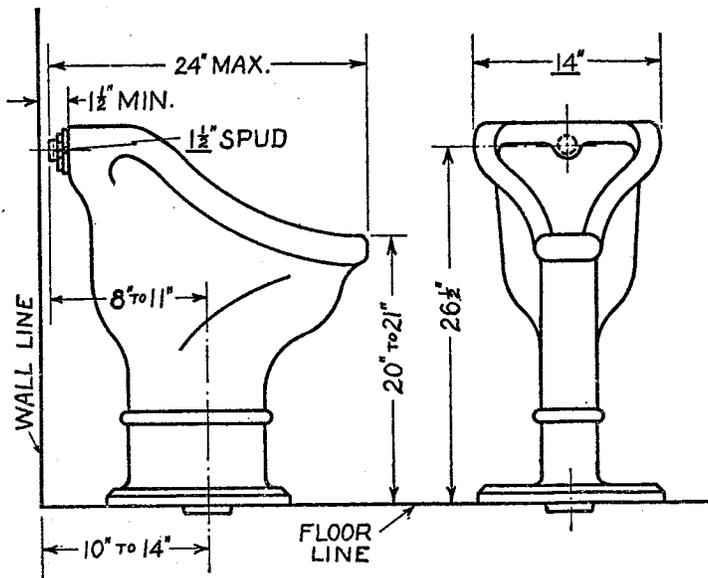


FIGURE 14.—Back supply pedestal urinal.

62. The following uniform guarantee is recommended:

We guarantee this vitreous china plumbing fixture against manufacturing defects. If it proves defective due to faulty workmanship or material within one year after installation a new fixture of the same type and size will be furnished. No labor or consequential damages will be allowed.

63. All vitreous china plumbing fixtures and trim thereof shall be constructed consistent with the principles as regards cross-connections promulgated in "Recommended Minimum Requirements for Plumbing" (BH13, 1931) report of the Subcommittee on Plumbing of the Building Code Committee, United States Department of Commerce.

## EFFECTIVE DATE

The revised standard is effective for new production from September 30, 1936.

## STANDING COMMITTEE

The following comprises the membership of the standing committee, which is to review, prior to circulation for acceptance, proposed revisions to keep the standard abreast of progress. Each association nominated its own representatives. Comment concerning the standard and suggestions for revision may be addressed to any member of

the committee or to the Division of Trade Standards, National Bureau of Standards, which acts as secretary for the committee.

E. S. AITKIN (chairman), Trenton Potteries Co., Trenton, N. J.

D. D. COUCH, Standard Sanitary Manufacturing Co., Bessemer Building, Pittsburgh, Pa.

A. V. GEMMILL, Speakman Co., Wilmington, Del.

JERE L. MURPHY, J. L. Murphy, Inc., 340 E. 44th St., New York, N. Y. (Representing National Association of Master Plumbers of the United States, Inc.)

W. J. SPILLANE, Jas. B. Clow & Sons, Box NN, Chicago, Ill.

C. W. OWEN, E. G. Schafer & Co., 2321 4th Street N. E., Washington, D. C.

BENJAMIN CADBURY, Hajoca Corporation, Box 1524, Philadelphia, Pa.

THEODORE I. COE, 4000 Cathedral Avenue, Washington, D. C. (Representing American Institute of Architects.)

I. J. FAIRCHILD, National Bureau of Standards, Washington, D. C.

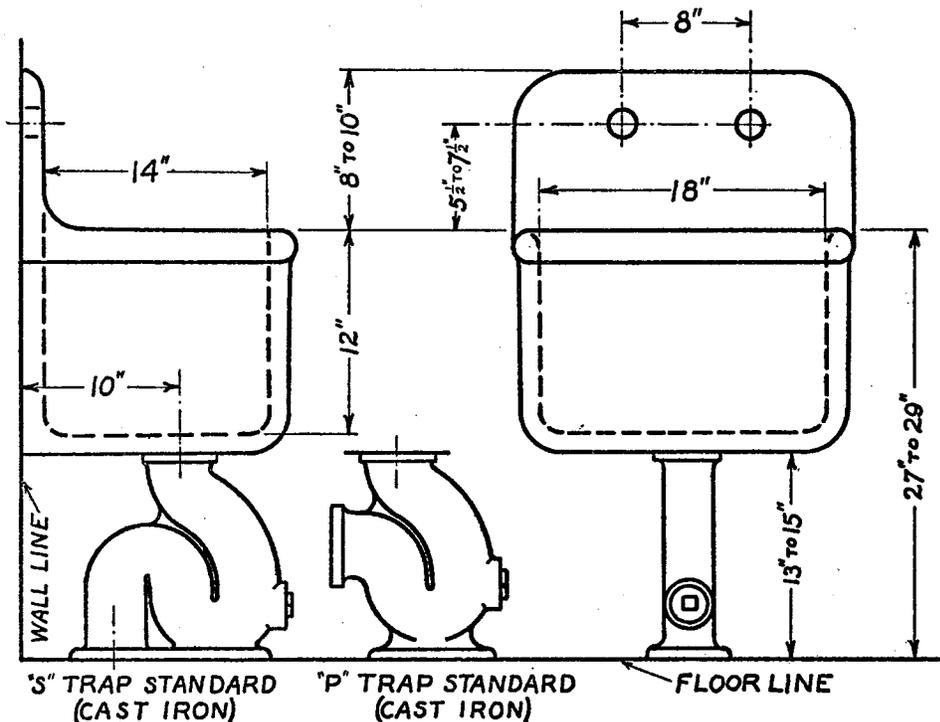


FIGURE 15.—Service sink.

## HISTORY OF PROJECT

Pursuant to a request from the industry and following several preliminary conferences of interested manufacturers, a public conference was held September 22, 1926, which resulted in the establishment of Simplified Practice Recommendation R52, Staple Vitreous China Plumbing Fixtures. On recommendation of the standing committee, this was expanded and superseded by a pamphlet entitled Staple Vitreous China Plumbing Fixtures, Commercial Standard CS20-30, effective for new production March 3, 1930.

In response to a demand for standards on additional types of fixtures, as well as for additional definitions and revisions, the Vitreous China Plumbing Fixture Association submitted recommended revisions on February 10, 1936, which were subsequently approved by the standing committee and circulated to all concerned for written acceptance on April 28, 1936. (Further details on history of project are recorded in Commercial Standard CS20-30. See page 21.)

### ACCEPTANCE OF COMMERCIAL STANDARD

This sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date \_\_\_\_\_

Division of Trade Standards,  
National Bureau of Standards,  
Washington, D. C.

Gentlemen:

Having considered the statements on the reverse side of this sheet, we accept the Commercial Standard CS20-36 as our standard of practice in the

Production <sup>1</sup>

Distribution <sup>1</sup>

Use <sup>1</sup>

of Staple Vitreous China Plumbing Fixtures.

We will assist in securing its general recognition and use, and will cooperate with the standing committee to effect revisions of the standard when necessary.

Signature \_\_\_\_\_

(Kindly typewrite or print the following lines)

Name and title \_\_\_\_\_

Company \_\_\_\_\_

Street address \_\_\_\_\_

City and State \_\_\_\_\_

<sup>1</sup> Please designate which group you represent by drawing lines through the other two. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval the words "In principle" should be added after the signature.

(Cut on this line)

5

6

## TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of the industry. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the industry as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard, and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: First, to act as an unbiased coordinator to bring all branches of the industry together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by companies representing a satisfactory majority of production, the success of the project is announced. If, however, in the opinion of the standing committee of the industry or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

## ACCEPTORS

Individuals and organizations listed below have indicated, in writing, acceptance of this specification as their standard of practice in production, distribution, or use, but such endorsement does not signify that they may not find it necessary to deviate from the standard, nor does it signify that the producers so listed guarantee all of their products to conform with the requirements of this standard.

### ASSOCIATIONS

<p>American Home Economics Association, Washington, D. C.</p> <p>American Institute of Architects, The, Washington, D. C. (In principle.)</p> <p>American Sanatorium Association, New York, N. Y.</p> <p>American Society of Sanitary Engineering, The, Columbus, Ohio. (In principle.)</p> <p>American Specification Institute, Chicago, Ill.</p> <p>American Transit Association, New York, N. Y. (In principle.)</p> <p>Associated General Contractors of America, Inc., The, Washington, D. C.</p>	<p>Central Supply Association, The, Chicago, Ill.</p> <p>Eastern Supply Association, New York, N. Y.</p> <p>General Federation of Women's Clubs, Standardization Committee, Clarksburg, W. Va. (In principle.)</p> <p>National Association of Master Plumbers, New York, N. Y.</p> <p>National Council of Women, Committee on Consumer Interests, Belmont, Mass. (In principle.)</p> <p>Vitreous China Plumbing Fixture Association, Pittsburgh, Pa.</p>
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### FIRMS

<p>Abingdon Sanitary Manufacturing Co., Abingdon, Ill.</p> <p>Adkins, Young &amp; Allen Co., Chicago, Ill.</p> <p>Ahlbach &amp; Mayer, San Francisco, Calif.</p> <p>Aitchison-Richmond Supply Co., St. Joseph, Mo.</p> <p>American Plumbing Manufacturing Co.'s, Woodside, N. Y.</p> <p>Anderson, F. H., Union Springs, Ala.</p> <p>Anderson, David E., Marquette, Mich.</p> <p>Andrews, Jones, Biscoe &amp; Whitmore, Boston, Mass.</p> <p>Associated Clinics and Hospital, Inc., Minneapolis, Minn. (In principle.)</p> <p>Auchinachie, Alex., Binghamton, N. Y.</p> <p>Austin, O. M., Johnson City, N. Y.</p> <p>Bailey, Chas. D., Montgomery, Ala.</p> <p>Baker Plumbing Co., Inc., Beaumont, Tex.</p> <p>Baker Specialty &amp; Supply Co., Logansport, Ind.</p> <p>Baker &amp; Vogel, Seattle, Wash. (In principle.)</p> <p>Baldwin, Frank, Newton, Iowa.</p> <p>Bareham &amp; Saunders, Rochester, N. Y. (In principle.)</p> <p>Bargelt &amp; Son, Hanover, Pa.</p> <p>Barrett Hardware Co., Joliet, Ill.</p> <p>Barrett Supply Co., Augusta, Ga.</p> <p>Jasche Sage Hardware Co., Baker, Oreg.</p>	<p>Bass Plumbing-Heating Co., J. P., Fulton, Mo.</p> <p>Bastow, Abram, New York, N. Y.</p> <p>Baumer, Herbert, Columbus, Ohio.</p> <p>Beall, Leo E., Sturgis, Mich.</p> <p>Beckman Bros., Des Moines, Iowa.</p> <p>Beeson, Carroll, O., Crawfordsville, Ind.</p> <p>Behrer Nason Co., Inc., New York, N. Y.</p> <p>Bellingham Plumbing Supply Co., Bellingham, Wash.</p> <p>Bell's Hardware and Plumbing, Bolivar, N. Y.</p> <p>Berlin &amp; Swern, Chicago, Ill.</p> <p>Beshore &amp; Co., Chas., Marion, Ind.</p> <p>Bial, George F., Hasbrouck Heights, N. J.</p> <p>Biever &amp; Co., A. W., Aurora, Ill.</p> <p>Billings, A. W. K., Jr., Boston, Mass.</p> <p>Binns Co., A. F., Oklahoma City, Okla.</p> <p>Blackall, Clapp, Whittemore &amp; Clark, Boston, Mass.</p> <p>Blackwell-Wielandy Co., St. Louis, Mo.</p> <p>Blake, Edgar Ovet, Evanston, Ill.</p> <p>Blodgett Supply Co., Inc., The, Burlington, Vt.</p> <p>Blodgett Supply Co., Inc., The, Plattsburg, N. Y.</p> <p>Blum Supply Co., Inc., Harry, New York, N. Y.</p> <p>Boehm, George A., New York, N. Y.</p>
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- Bolton, George W., Coral Gables, Fla.  
 Boosey Manufacturing Co., Norman, Detroit, Mich. (In principle.)  
 Bowen Plumbing Co., San Angelo, Tex.  
 Bowman Supply and Manufacturing Co., Inc., Pittsburgh, Pa.  
 Brainerd, Harry B., New York, N. Y.  
 Brand, Herbert A., Chicago, Ill.  
 Brasher, Preston, Alexandria, La.  
 Brazer, Clarence W., Chester, Pa.  
 Breedlove, C. L., Madison, S. Dak.  
 Brennan, T. J., Rochester, N. Y.  
 Bridgeport Plumbing Supply Co., Inc., Bridgeport, Conn.  
 Bristol Supply Co., St. Joseph, Mo.  
 Brown, W. J., Cedar Rapids, Iowa. (In principle.)  
 Brust, Peter, Milwaukee, Wis.  
 Buck, Ben Adams, West Chatham, Mass.  
 Bumsteads, Colorado Springs, Colo.  
 Burnham Bros. & Hammond, Chicago, Ill.  
 Byrd Plumbers' Supply Co., Cleveland, Ohio.  
 Camlet, J. Thomas, Clifton, N. J.  
 Canfield Supply Co., Kingston, N. Y.  
 Cannon & Fetzer, Salt Lake City, Utah.  
 Carlander, Guy A., Amarillo, Tex.  
 Carroll, John, Atlantic City, N. J.  
 Carstens Bros., Ackley, Iowa.  
 Case & Son Manufacturing Co., W. A., Buffalo, N. Y.  
 Cayton, Herbert C., Honolulu, Territory of Hawaii.  
 Cedar Rapids Pump and Supply Co., Cedar Rapids, Iowa.  
 Cellarius, Chas. F., Cincinnati, Ohio.  
 Central Plumbing Supply Co., The, Bridgeport, Conn.  
 Central Supply Co., Minneapolis, Minn.  
 Cervin & Stuhr, Rock Island, Ill.  
 Chandler Co., Cedar Rapids, Iowa.  
 Channel Co., Long Beach, Calif.  
 Chapman, George A., Chicago, Ill.  
 Chenoweth, James, Philippi, W. Va.  
 Chicago Faucet Co., The, Chicago, Ill.  
 Chicago Pottery Co., Chicago, Ill.  
 Child, Harry Charles, Sayre, Pa.  
 Clinton Plumbing Supply Co., Inc., Union City, N. J.  
 Clow & Sons, James B., Chicago, Ill.  
 Coit, Elisabeth, New York, N. Y.  
 Cokefair, Inc., E. N., New York, N. Y.  
 Conrad & Cummings, Binghamton, N. Y.  
 Conrow, H. S., Wichita, Kans.  
 Consolidated Plumbing and Heating Supply Co., Newark, N. J.  
 Cook, P. S., Cheyenne, Wyo.  
 Cope, Thomas Pym, Philadelphia, Pa.  
 County Seat Plumbing Supply Co., Inc., White Plains, N. Y.  
 Crane Co., Chicago, Ill.  
 Dahn, Edward, Philadelphia, Pa.  
 Dailey, Harold R., Indianapolis, Ind.  
 Dakota Electric Supply Co., Fargo, N. Dak.  
 Dalton Supply Co., Clarks Summit, Pa.  
 Dalziel Moller Co., San Francisco, Calif.  
 Daniel, J. E., Jr., DeWitt, Ark.  
 Dawson Plumbing Co., Corpus Christi, Tex.  
 DeJarnette, Charles W., Des Moines, Iowa.  
 Delta Plumbing Supply Co., Inc., New Orleans, La.  
 Dengel Co., F. R., Milwaukee, Wis.  
 Detroit Sanitary Manufacturing Co., Detroit, Mich. (In principle.)  
 Deutz & Bro., A., Laredo, Tex.  
 Dietel & Wade, Buffalo, N. Y.  
 Dodge & Morrison, New York, N. Y.  
 Drake, Inc., George H., Buffalo, N. Y.  
 Dubuque Supply Co., R. A., St. Louis, Mo.  
 Eastern Plumbing Supply Co., The, Hartford, Conn.  
 Eastern Sanitary Supply Co., The, Baltimore, Md.  
 Eberhard, Wm., Brooklyn, N. Y.  
 Egyptian Supply Co., Christopher, Ill. Paducah, Ky. and St. Louis, Mo.  
 Elizabeth City Iron Works and Supply Co., Elizabeth City, N. C.  
 Eljer-California Co., Los Angeles, Calif.  
 Emery, Henry G., Nyack, N. Y.  
 Emery's Sons, Inc., Thos., Cincinnati, Ohio.  
 Export Plumbing Supply Corporation, Woodside, N. Y.  
 Fall River Steam and Gas Pipe Co., Corporation, Fall River, Mass.  
 Farrell, Gerald F., Plains, Pa.  
 Federal Huber Co., Chicago, Ill.  
 Fehn, Sidney M., College Point, N. Y.  
 Ferguson Plumbing and Heating Co., Saginaw, Mich.  
 Ferguson Supply Co., Grand Rapids, Mich.  
 Field & Shorb Co., The, Decatur, Ill.  
 Flannagan, Eric G., Henderson, N. C.  
 Florida Automobile and Gas Engine Co., Tampa, Fla.  
 Fords Porcelain Works, Perth Amboy, N. J.  
 Franklin Plumbing and Heating Co., Columbus, Ohio.  
 Frazer, Guy Lewis, El Paso, Tex.  
 Frontier Water and Steam Supply Co., Buffalo, N. Y.  
 Gall, Harry L. C., New York, N. Y.  
 Gangwer, A. W., LaPorte, Ind.  
 Gardner, H. Sumner, Binghamton, N. Y.  
 Gehri Heating and Plumbing Co., Inc., Tacoma, Wash.  
 General Ceramics Co., New York, N. Y.  
 Germain Manufacturing Co., Saginaw, Mich.  
 Glustoff & Bro., D., Chicago, Ill.  
 Grady Plumbing Co., Carbondale, Ill.

- Grant Plumbing, C. F., Grand Rapids, Mich.
- Green & Co., Raymond C., Jenkintown, Pa.
- Haas Co., The William, Dayton, Ohio.
- Hahn, Stanley W., Arlington, Va. (In principle.)
- Hajoca Corporation, Philadelphia, Pa.
- Hale Sheet Metal Works, John, Reedsville, Wis.
- Hallberg, L. G., Chicago, Ill.
- Hamilton, John A., New York, N. Y.
- Hanley, Edward J., Cincinnati, Ohio.
- Harley & Ellington, Inc., Detroit, Mich.
- Harper & West, Boston, Mass. (In principle.)
- Hasness, C. D., Harrisburg, Pa.
- Hatch & Co., H. A., Boston, Mass.
- Hathaway, Geo. C., San Antonio, Tex.
- Healey Pottery Co., Trenton, N. J.
- Heidke, Frank, Jr., Philadelphia, Pa.
- Helleberg, J. P., Kearney, Nebr.
- Hering & Sons, Philip, Philadelphia, Pa.
- Hermitage Engineering Co., Nashville, Tenn.
- Hess Co., Charles, New York, N. Y.
- Hesse, William, New Britain, Conn.
- Heughlin, T. Clinton, Louisville, Ky.
- Higbro Engineering Co., Wellington, Kans.
- Higgins, Charles H., New York, N. Y.
- Hirschfield & Mayer Co., Allston, Mass.
- Holden, McLaughlin and Associates, New York, N. Y.
- Holyoke Supply Co., Holyoke, Mass.
- Home Plumbing and Heating Co., Twin Falls, Idaho.
- Honold Co., Charles A., Sheboygan, Wis.
- Honolulu Iron Works Co., Honolulu, Hawaii.
- Hood River Plumbing Co., Hood River, Oreg.
- Hopkins, Albert Hart, Buffalo, N. Y.
- Hubbard Co., The S. B., Jacksonville, Fla.
- Hughes Heating and Plumbing Co., The, Minneapolis, Minn.
- Hughes Supply Co., The, Mansfield, Ohio.
- Hunt Co., R. H., Chattanooga, Tenn. (In principle.)
- Hunting Co., The, Rochester, N. Y.
- Hyde Park Plumbing Co., Boise, Idaho.
- Ideal Supply Co., Somerville, Mass.
- Ihler, J. P., Spokane, Wash.
- Illinois, University of, Urbana-Champaign, Ill. (In principle.)
- Imperial Brass Manufacturing Co., The, Chicago, Ill. (In principle.)
- Jacobs Plumbing Supply Corporation, C. & S., Brooklyn, N. Y.
- Jacoby & Everett, Allentown, Pa.
- Jardine Plumbing Co., The, Chillicothe, Ohio.
- Jedlicka Bros. Co., Inc., Sayville, N. Y.
- Joannes, Francis Y., New York, N. Y.
- Johnson, G. W., Berwick, Pa.
- Johnson Co., J. D., Pensacola, Fla.
- Johnson, Keplar B., Seattle, Wash.
- Johnson Plumbing Co., Texarkana, Ark.
- Johnstone & Eggert, North Tonawanda, N. Y.
- Kahn, Inc., Albert, Detroit, Mich.
- Kahn, Samuel R., New York, N. Y.
- Kantor, A., Plainfield, N. J.
- Karter, Geo. H., Cullman, Ala.
- Keiser-Van Leer Co., The, Bloomington, Ill.
- Kennedy Co., The, Cleveland, Ohio.
- Klink, N. S., Phoenix, Ariz.
- Klotsch, Inc., H. C., Baltimore, Md.
- Knapp Supply Co., The, Muncie, Ind.
- Kohler Co., Kohler, Wis.
- Kruse & Klein, Davenport, Iowa. (In principle.)
- Kurtz Hardware Co., The Biggs, Grand Junction, Colo.
- La Chance, W. W., Niagara Falls, N. Y.
- Lansdown Machine Works, Walsenburg, Colo.
- Laughlin Co., The Thomas, Portland, Maine.
- Lawrence, Holford & Allyn, Portland, Oreg.
- Lebanon Plumbing Supply Co., Lebanon, Pa.
- Lee Hardware Co., The, Salina, Kans.
- Lee & Hewitt, Paterson, N. J.
- Lenahan, Daniel W., New York, N. Y.
- LeValley, McLeod, Kinkaaid Co., Inc., Schenectady, N. Y.
- Levine, Samuel, New York, N. Y.
- Liberty Plumbers Supply Co., Inc., Stapleton, N. Y.
- Loeb, Laurence M., White Plains, N. Y.
- Lorenz Co., Klamath Falls, Oreg.
- Lorick & Lowrance, Inc., Columbia, S. C.
- Lubeley, John L., Hartington, Nebr.
- MacMullen & Co., Philadelphia, Pa.
- Magney & Tusler, Inc., Minneapolis, Minn.
- Malone Plumbing Supply Co., Pittsburgh, Pa.
- Malone, Robert E., Little Falls, N. Y.
- Mann & Co., Hutchinson, Kans. (In principle.)
- Martin & Co., Joseph P., Fort Wayne, Ind.
- Martin Metal Manufacturing Co., The, Wichita, Kans.
- Martin & Son, A. Oscar, Doylestown, Pa.
- Massachusetts Plumbing Supply Co., Inc., Boston, Mass.
- Mauran, Russell & Crowell, St. Louis, Mo.
- Maxwell & Keyser, Beckley, W. Va.
- McArdle & Cooney, Inc., Philadelphia, Pa.
- McArdle & Walsh, Inc., Baltimore, Md.
- McCampbell, Charles T., Fairfield, Iowa.

- McCornack, Walter R., Cleveland, Ohio.
- McCray, Howard, Albion, Nebr.
- McGowin-Lyons Hardware and Supply Co., Mobile, Ala.
- McHale, Ed. T., Hazleton, Pa.
- McKenna Bros., Westbury, N. Y.
- McMullen, C. E., Hume, Ill.
- McNeill, O. H., Herrin, Ill.
- Mechanical Construction Corporation, Hibbing, Minn.
- Merkel Bros. Co., The, Cincinnati, Ohio.
- Merrimack Valley Supply Co., Lowell, Mass.
- Merz, Geo. F., Cornwall Bridge, Conn.
- Meyer, F. & J., New York, N. Y.
- Meyers, Henry H., Alameda, Calif.
- Midland Plumbing Supply Co., East St. Louis, Ill.
- Miller & Yeager, Terre Haute, Ind.
- Milwaukee, City of, Milwaukee, Wis.
- Mission Pipe and Supply Co., San Diego, Calif.
- Missoula Mercantile Co., Missoula, Mont.
- Mitchell, Inc., Lloyd E., Baltimore, Md.
- Modern Plumbing and Heating Co., Grand Rapids, Mich.
- Molther, F. R., Ancon, Canal Zone.
- Momsen-Dunnegan-Ryan Co., Phoenix, Ariz.
- Montgomery & Pattleson, Charleston, W. Va. (In principle.)
- Morrison Supply Co., Fort Worth, Tex.
- Mott Co. of Pennsylvania, Philadelphia, Pa.
- Moucha & Quelch, Inc., New York, N. Y.
- Mundie Jensen Bourke & Havens, Chicago, Ill.
- Murphy, Inc., J. L., New York, N. Y.
- Murphy Supply Co., Green Bay, Wis.
- Murray, H. M., Bristol, R. I.
- Myers, Nathan, Newark, N. J.
- National Tube Co., McKeesport, Pa. (In principle.)
- Nelson, Albert L., St. Louis, Mo.
- Nelson Co., Detroit, Mich.
- Nelson Co., N. O., St. Louis, Mo.
- Netzer Hardware Co., Jos., Laredo, Tex.
- New Freedom Hardware Co., New Freedom, Pa.
- New Jersey Engineering and Supply Co., Passaic, N. J.
- New Orleans, Inc., Better Business Bureau of, New Orleans, La. (In principle.)
- Nick, Oscar H., Erie, Pa.
- Norfolk & Western Railway Co., Roanoke, Va.
- Oakland Public Schools, Oakland, Calif.
- O'Donnell Co., Val. J., Worcester, Mass.
- Ohio State Supply Co., The, Youngstown, Ohio.
- Olsen & Heffernan, San Francisco, Calif.
- Orr, Robert H., Los Angeles, Calif.
- Otto, H. W., Milwaukee, Wis.
- Parish, Inc., Smith, Portville, N. Y.
- Parker, Llewellyn A., Los Angeles, Calif.
- Patton, Inc., Roy L., Oklahoma City, Okla.
- Patton, Walter E., Sewickley, Pa.
- Paul Supply Co., Chicago, Ill.
- Peaslee, Horace W., Washington, D. C.
- Peck Co., The Frank B., Hornell, N. Y.
- Pehrson, G. A., Spokane, Wash.
- Pennsylvania, Commonwealth of, Department of Property and Supplies, Harrisburg, Pa.
- Pennsylvania Railroad, The, Philadelphia, Pa. (In principle.)
- Peoria, Inc., Better Business Bureau of, Peoria, Ill. (In principle.)
- Pfeiffer, Fred. R., Covington, Ky.
- Platts Premier Porcelain, Inc., Santa Clara, Calif.
- Pleitsch & Price, St. Louis, Mo.
- Plumbers and Factory Supplies, Inc., Columbus, Ohio.
- Plumbers' Supply Co., New Bedford, Mass.
- Plumbing and Heating Supply Co., Inc., The, Nashville, Tenn.
- Plumbing Sales Co., Chicago, Ill.
- Poekert, R. A., Pittsburgh, Pa.
- Pomeroy Plumbing Supply, Inc., Astoria & Corona, N. Y.
- Praetorius Sanitary Plumbing, Wm. P., Grand Rapids, Mich.
- Rainear & Co., Inc., C. J., Philadelphia, Pa.
- Rains, Raymond, Louisville, Ky.
- Rapid Plumbing Co., Rapid City, S. Dak.
- Rayl Co., The, Detroit, Mich.
- Reading Foundry and Supply Co., Reading, Pa.
- Redmond Co., The Geo., Cleveland, Ohio.
- Reger, Frank A., Baltimore, Md.
- Reichle Supply Co., Saginaw, Mich.
- Reid, William H., Jr., Billings, Mont.
- Resolute Pottery, Trenton, N. J.
- Reynolds, S. A., Lexington, Ky.
- Richardson, A., Nelsonville, Ohio.
- Riggs & Jensen, Geneva, N. Y.
- Ringle, David, Midvale, N. J.
- Rittenberry & Carder, Amarillo, Tex.
- Robischung-Kiesling, Inc., Houston, Tex.
- Roosevelt Co., W. A., La Crosse, Wis.
- Rousseau, M. C., Cleveland, Ohio.
- Ruffing & Sons, Charles, Pittsburgh, Pa.
- Russell, Lance & Muri, Tacoma, Wash.
- Sales & Co., Murray W., Detroit, Mich.
- Sanitary Plumbing Supply Co., Jersey City, N. J.

- Santa Monica Plumbing Supply Co.,  
Santa Monica, Calif.
- Scamell, Ralph E., Topeka, Kans.
- Schaeffler, Joseph C., New York, N. Y.
- Schmidt, Garden & Erikson, Chicago,  
Ill. (In principle.)
- Scholl, Jos., Philadelphia, Pa.
- Schulte Plumbing and Heating Co.,  
The, Joplin, Mo.
- Scranton Better Business Bureau, Inc.,  
Scranton, Pa. (In principle.)
- Scribner & Neumann, Baltimore, Md.
- Seckinger & Garwes Plumbing & Heat-  
ing Co., Savannah, Ga.
- Shaver, Chas. W., Salina, Kans.
- Shepley-Hayner Co., Freeport, Ill.
- Sherwood Brass Works, Detroit, Mich.  
(In principle.)
- Shivers Plumbing Supply Co., W. M.,  
Houston, Tex.
- Sievert, Inc., W. J., Chicago, Ill.
- Silvers, W. C., New Smyrna, Fla.
- Simpson, Inc., W. H., Olean, N. Y.
- Skantz Bros., Duluth, Minn.
- Sleeper, Harold R., New York, N. Y.
- Smith & Edwards, Washington, D. C.
- Smith & English, Hutchinson, Kans.
- Soll, Inc., B., Brooklyn, N. Y.
- Southern Supply Co., Inc., Baltimore,  
Md.
- Spangler Plumbing and Heating Co.,  
Birmingham, Ala.
- Speakman Co., Wilmington, Del.
- Specification Record, Chicago, Ill.
- Standard Plumbing and Heating Co.,  
Dumont, N. J.
- Standard Sanitary Manufacturing Co.,  
Pittsburgh, Pa.
- Standard Tank and Seat Co., Camden,  
N. J. (In principle.)
- Staub, John F., Houston, Tex.
- Stauble, Theo. R., Monroe, N. Y.
- Stepnoski & Son, F. J., Fond du Lac,  
Wis.
- Stopper, Eugene A., Philadelphia, Pa.
- Summers Hardware and Supply Co.,  
Johnson City, Tenn.
- Swanger & McClain, Inc., Marion, Ind.
- Swank Hardware Co., Johnstown, Pa.
- Sweets Catalog Service Division of  
F. W. Dodge Corporation, New York,  
N. Y. (In principle.)
- Taub Plumbing Supply Co., Inc., New-  
ark, N. J.
- Taylor & Ellis Wing Taylor, Edward  
Cray, Los Angeles, Calif.
- Taylor Plumbing, Grand Rapids, Minn.
- Tennessee Land Co., Fairfield, Ala.
- Thomas, Oren, Des Moines, Iowa.
- Thomas Supply Co., Racine, Wis.
- Thornley Supply Co., The, Pawtucket,  
R. I.
- Tilden Register & Pepper, Philadelphia,  
Pa.
- Tilghman Moyer Co., Allentown, Pa.
- Tomlinson Co., Inc., Philadelphia, Pa.
- Townsend & Gehron, Martinsville,  
Ohio.
- Trenton Potteries Co., The, Trenton,  
N. J.
- Trumbull Plumbing Supply Co., War-  
ren & Youngstown, Ohio.
- Tucker & Co., Brookline, Mass.
- Turner & Van Scoy Co., Wilkes-Barre,  
Pa.
- Tyler, Fred W., Lincoln, Nebr.
- United Pipe and Supply Co., Inc.,  
Norristown, Pa.
- U. S. Supply Co., Kansas City, Mo.
- Universal Sanitary Manufacturing Co.,  
New Castle, Pa.
- Valley Plumbing and Heating Supply  
Co., Menasha, Wis.
- Van Bergen, John S., Highland Park,  
Ill.
- Van Camp Hardware and Iron Co.,  
Indianapolis, Ind.
- Veenstra, Otto, Chicago, Ill.
- Virginia Polytechnic Institute, Blacks-  
burg, Va. (In principle.)
- Vogel Co., John J., Boston, Mass.
- Vogel Co., Joseph A., Wilmington, Del.  
(In principle.)
- Wachter & Horace W. Wachter, Harry  
W., Toledo, Ohio.
- Wagner & Sons, Michael, Chicago, Ill.
- Waldo Hardware Co., Rumford, Maine.
- Walsh, W. H., Chicago, Ill.
- Walsh & Wertheim, New York, N. Y.
- Warren, Balderston Co., Trenton, N. J.
- Webb Manufacturing Co., F. W.,  
Roxbury, Mass.
- Weber & Co., Inc., C. L., Philadelphia,  
Pa.
- Webster Plumbing and Heating Co.,  
K. W., Centralia, Ill.
- Weil Bros., Hardware and Plumbing  
Supply Corporation, of, New York,  
N. Y.
- Weinberg, Joseph L., Cleveland, Ohio.  
(In principle.)
- Western Electric Co., Inc., New York,  
N. Y. (In principle.)
- Western Metal Supply Co., San Diego,  
Calif.
- Western Plumbing and Heating Co.,  
Chicago, Ill.
- Wheatland Co., Cedar Rapids, Iowa.
- Whitney & Ford Co., Chicago, Ill.
- Will, C. K., Lancaster, Pa.
- Willatsen, Andrew, Seattle, Wash.
- Williams Plumbing and Heating Co.,  
A. A., Kewanee, Ill.
- Willson, Fred F., Bozeman, Mont.
- Winterbottom Supply Co., Waterloo,  
Iowa.
- Wischmeyer, Wm. F., St. Louis, Mo.
- Withey, H. F., Los Angeles, Calif.
- Wolfe, Ed. H., Turlock, Calif.
- Woltersdorf, Arthur, Chicago, Ill. (In  
principle.)
- Woolcock, C. J., Niagara Falls, N. Y.

Worthington Co., The Geo., Cleveland, Ohio.  
 Wright, Frank H., Detroit, Mich. (In principle.)  
 Young, Lorenzo S., Salt Lake City, Utah.  
 Young Supply Co., W. B., Kansas City, Mo.

Young & Vann Supply Co., The, Birmingham, Ala.  
 Zandler, Chris, New York, N. Y.  
 Zimmer Plumbing Co., H. E., Canton, Ohio.  
 Zimmerman, Inc., Joseph, Staten Island, N. Y.  
 Zoller & Muller, New York, N. Y.

## U. S. GOVERNMENT

District of Columbia, Government of the, Washington, D. C.

Veterans' Administration, Washington, D. C.  
 War Department, Washington, D. C.

## COMMERCIAL STANDARDS

CS no.	Item	CS no.	Item
0-30.	The commercial standards service and its value to business.	33-32.	Knit underwear (exclusive of rayon).
1-32.	Clinical thermometers (second edition).	34-31.	Bag, case and strap leather.
2-30.	Mopsticks.	35-31.	Plywood.
3-28.	Stoddard solvent.	36-33.	Fourdrinier wire cloth (second edition).
4-29.	Staple porcelain (all-clay) plumbing fixtures.	37-31.	Steel bone plates and screws.
5-29.	Steel pipe nipples.	38-32.	Hospital rubber sheeting.
6-31.	Wrought-iron pipe nipples (second edition).	39-32.	Wool and part wool blankets.
7-29.	Standard weight malleable iron or steel screwed unions.	40-32.	Surgeons' rubber gloves.
8-33.	Gage blanks (second edition).	41-32.	Surgeons' latex gloves.
9-33.	Bullders' template hardware (second edition).	42-35.	Fiber insulating board (second edition).
10-29.	Brass pipe nipples.	43-32.	Grading of sulphonated oils.
11-29.	Regain of mercerized cotton yarns.	44-32.	Apple wraps.
12-35.	Fuel oils (third edition).	45-33.	Douglas fir plywood.
13-30.	Dress patterns.	46-36.	Hosiery lengths and sizes (second edition).
14-31.	Boys' blouses, button-on waists, shirts, and junior shirts.	47-34.	Marking of gold-filled and rolled-gold-plate articles other than watch cases.
15-29.	Men's pajamas.	48-34.	Domestic burners for Pennsylvania anthracite (underfeed type).
16-29.	Wall paper.	49-34.	Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
17-32.	Diamond core drill fittings (second edition).	50-34.	Binders board for bookbinding and other purposes.
18-29.	Hickory golf shafts.	51-35.	Marking articles made of silver in combination with gold.
19-32.	Foundry patterns of wood (second edition).	52-35.	Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
20-36.	Staple vitreous china plumbing fixtures (second edition).	53-35.	Colors and finishes for cast stone.
21-36.	Interchangeable ground-glass joints, stopcocks and stoppers (third edition).	54-35.	Mattresses for hospitals.
22-30.	Builders' hardware (nontemplate).	55-35.	Mattresses for institutions.
23-30.	Feldspar.	56-36.	Oak flooring.
24-30.	Standard screw threads.	57-36.	Book cloths, buckrams and impregnated fabrics for bookbinding purposes except library bindings.
25-30.	Special screw threads.	58-36.	Woven elastic fabrics for use in overalls (overall elastic webbing).
26-30.	Aromatic red cedar closet lining.	59-36.	Woven dress fabrics—testing and reporting.
27-36.	Mirrors.	60-36.	Hardwood dimension lumber.
28-32.	Cotton fabric tents, tarpaulins, and covers.		
29-31.	Staple seats for water-closet bowls.		
30-31.	Colors for sanitary ware.		
31-35.	Wood shingles (third edition).		
32-31.	Cotton cloth for rubber and pyroxylin coating.		

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of every day practice in their industry, may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, National Bureau of Standards, Washington, D. C.