AUG 13 1946

CS5-46
Nipples, Pipe; Brass, Copper,
Steel, and Wrought-Iron

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U. S. DEPARTMENT OF COMMERCE
HENRY A. WALLACE, Secretary
NATIONAL BUREAU OF STANDARDS
E. U. CONDON, Director

PIPE NIPPLES; BRASS, COPPER, STEEL AND WROUGHT-IRON

(SECOND EDITION)

COMMERCIAL STANDARD CS5-46

(Supersedes CS5-40)

Effective Date for New Production From February 15, 1946

A RECORDED VOLUNTARY
STANDARD OF THE TRADE

UNITED STATES
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PROMULGATION

of

COMMERCIAL STANDARD CS5–46

for

PIPE NIPPLES; BRASS, COPPER, STEEL, AND WROUGHT-IRON

(Second Edition)

On January 10, 1940, at the recommendation of the combined standing committees, a recommended revision and consolidation of Commercial Standards CS5–29, CS6–31, and CS10–29, was circulated for acceptance. The revised standard was accepted by those concerned, and approved for promulgation as CS5–40 by the Department of Commerce, through the National Bureau of Standards.

On November 2, 1945, a revision submitted by the National Association of Pipe Nipple Manufacturers, Inc., and approved by the standing committee, was circulated for acceptance. Those concerned have since accepted and approved the revised standard as shown herein, for promulgation by the United States Department of Commerce, through the National Bureau of Standards.

The revised standard is effective for new production from February 15, 1946.

Promulgation recommended.

F. W. Reynolds,
Acting Chief, Division of Trade Standards.

Promulgated.

E. U. Condon,
Director, National Bureau of Standards.

Promulgation approved.

Henry A. Wallace,
Secretary of Commerce

PIPE NIPPLES; BRASS, COPPER, STEEL, AND WROUGHT-IRON

(Second Edition)

COMMERCIAL STANDARD CS5–46

PURPOSE

1. This standard is a basis for common understanding between manufacturers, distributors, and users of pipe nipples. Through the certification of quality according to the requirements of this standard a means is provided to safeguard the user and place competition on a fair basis to the mutual advantage of all concerned.

SCOPE

2. This standard covers steel, ferrous-alloy, and wrought-iron pipe nipples, black- and zinc-coated (hot-dip galvanized), in iron-pipe sizes from ⅛ to 12 inches, inclusive, of standard lengths; and brass and copper nipples in standard sizes from ⅛ to 6 inches, inclusive, of standard lengths.

3. Ferrous-iron pipe nipples are furnished in the following weights: standard weight, extra strong, and double extra strong.

4. Brass and copper pipe nipples are furnished in the following weights: standard weight and extra strong.

MATERIAL

5. *Steel and ferrous-alloy* pipe nipples shall be made only from tested new black- or zinc-coated (hot-dip galvanized), welded, and seamless steel and ferrous-alloy pipe conforming in all respects to the requirements of Federal Specification WW–P–406 or to ASTM [1] Specification A120–44 (for ordinary uses).

6. *Wrought-iron* pipe nipples shall be made only from tested new black- or zinc-coated (hot-dip galvanized) welded wrought-iron pipe conforming in all respects to the requirements of Federal Specification WW–P–441a or ASTM Specification A72–39.

7. *Brass* pipe nipples shall be made only from tested new seamless brass pipe conforming in all respects to the requirements for red brass as given in either Federal Specification WWP–351 or ASTM Specification B43–42. The chemical composition of red brass covered by Federal Specification WWP–351 is given for convenience in table 1.

TABLE 1.—*Chemical composition of red brass pipe (WWP–351) and copper pipe (WWP–377)*

Type	Copper	Zinc	Lead	Iron
	Percent	*Percent*	*Percent*	*Percent*
Red brass	83 to 86	Remainder	0.06 max.	0.05 max.
Copper	99.9 min.[1]	----------	----------	----------

[1] Silver counting as copper.

[1] American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

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8. Copper pipe nipples shall be made only from tested new seamless copper pipe conforming in all respects to the requirements of either Federal Specification WWP–377 or ASTM Specification B42–43. The chemical composition of copper pipe covered by Federal Specification WWP–377 is given for convenience in table 1.

GENERAL

9. Pipe nipples shall be threaded on both ends with standard taper pipe threads conforming to Federal Specification GGG–P–351a Pipe-Threads; *Taper (American-National),* or to American Standard for Pipe Threads, published by the American Society of Mechanical Engineers and the American Standards Association, B2.1–1945.

10. Pipe nipples shall be chamfered on the outside at an angle of 25° to 45° to the central axis. Ends shall be cut square to the central axis. All burrs on the inside shall be removed.

11. A tolerance of plus or minus 1/16 inch in length is permitted.

DETAIL REQUIREMENTS

12. Ferrous pipe nipples shall be of the respective dimensions given in tables 2, 3, 4, and 5. Special sizes and lengths may be specified when required. Special lengths shall not vary more than 1/16 inch over or under the lengths required by the purchase order.

TABLE 2.—*Ferrous pipe nipples, standard weight, black, iron-pipe sizes and lengths*

Iron-pipe size	Lengths				
	Close	Special short	Short	Long	Extra long
	Inches	*Inches*	*Inches*	*Inches*	*Inches*
1/8	3/4	-----	1 1/2	2, 2 1/2, 3, 3 1/2	4, 4 1/2, 5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
1/4	7/8	-----	1 1/2	2, 2 1/2, 3, 3 1/2	4, 4 1/2, 5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
3/8	1	-----	1 1/2	2, 2 1/2, 3, 3 1/2	4, 4 1/2, 5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
1/2	1 1/8	-----	1 1/2	2, 2 1/2, 3, 3 1/2	4, 4 1/2, 5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
3/4	1 3/8	-----	2	2 1/2, 3, 3 1/2, 4	4 1/2, 5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
1	1 1/2	-----	2	2 1/2, 3, 3 1/2, 4	4 1/2, 5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
1 1/4	1 5/8	2	2 1/2	3, 3 1/2, 4, 4 1/2	5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
1 1/2	1 3/4	2	2 1/2	3, 3 1/2, 4, 4 1/2	5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
2	2	-----	2 1/2	3, 3 1/2, 4, 4 1/2	5, 5 1/2, 6, 7, 8, 9, 10, 11, 12
2 1/2	2 1/2	-----	3	3 1/2, 4, 4 1/2, 5	5 1/2, 6, 7, 8, 9, 10, 11, 12
3	2 5/8	-----	3	3 1/2, 4, 4 1/2, 5	5 1/2, 6, 7, 8, 9, 10, 11, 12
3 1/2	2 3/4	-----	4	4 1/2, 5, 5 1/2, 6	7, 8, 9, 10, 11, 12
4	2 7/8	-----	4	4 1/2, 5, 5 1/2, 6	7, 8, 9, 10, 11, 12
5	3	4	4 1/2	5, 5 1/2, 6	7, 8, 9, 10, 11, 12
6	3 1/8	4	4 1/2	5, 5 1/2, 6	7, 8, 9, 10, 11, 12
8	3 1/2	-----	5	6, 7, 8	10, 12
10	3 7/8	-----	5	6, 7, 8	10, 12
12	4 1/2	-----	6	8	10, 12

TABLE 3.—*Ferrous pipe nipples, extra strong, black, iron-pipe sizes and lengths*

Iron-pipe size	Lengths				
	Close	Special short	Short	Long	Extra long
	Inches	*Inches*	*Inches*	*Inches*	*Inches*
⅛	¾	-----	1½	2, 2½, 3, 3½	4, 5, 6
¼	⅞	-----	1½	2, 2½, 3, 3½	4, 5, 6
⅜	1	-----	1½	2, 2½, 3, 3½	4, 4½, 5, 6
½	1⅛	-----	1½	2, 2½, 3, 3½	4, 4½, 5, 6
¾	1⅜	-----	2	2½, 3, 3½, 4	4½, 5, 6
1	1½	-----	2	2½, 3, 3½, 4	4½, 5, 6
1¼	1⅝	2	2½	3, 3½, 4, 4½	5, 6
1½	1¾	2	2½	3, 3½, 4, 4½	5, 6
2	2	-----	2½	3, 3½, 4, 4½	5, 6
2½	2½	-----	3	3½, 4, 4½, 5	6
3	2⅝	-----	3	3½, 4, 4½, 5	6
3½	2¾	-----	4	5, 6	----------
4	2⅞	-----	4	5, 6	----------

TABLE 4.—*Ferrous pipe nipples, standard weight, zinc-coated, iron-pipe sizes and lengths*

Iron-pipe size	Lengths				
	Close	Special short	Short	Long	Extra long
	Inches	*Inches*	*Inches*	*Inches*	*Inches*
⅛	¾	-----	1½	2, 2½, 3, 3½	4, 5, 6
¼	⅞	-----	1½	2, 2½, 3, 3½	4, 5, 6
⅜	1	-----	1½	2, 2½, 3, 3½	4, 4½, 5, 5½, 6, 8, 10, 12
½	1⅛	-----	1½	2, 2½, 3, 3½	4, 4½, 5, 5½, 6, 8, 10, 12
¾	1⅜	-----	2	2½, 3, 3½, 4	4½, 5, 5½, 6, 8, 10, 12
1	1½	-----	2	2½, 3, 3½, 4	4½, 5, 5½, 6, 8, 10, 12
1¼	1⅝	2	2½	3, 3½, 4, 4½	5, 5½, 6, 8, 10, 12
1½	1¾	2	2½	3, 3½, 4, 4½	5, 5½, 6, 8, 10, 12
2	2	-----	2½	3, 3½, 4, 4½	5, 5½, 6, 8, 10, 12
2½	2½	-----	3	3½, 4, 5	6, 8, 10, 12
3	2⅝	-----	3	3½, 4, 4½, 5	6
3½	2¾	-----	4	5, 6	----------
4	2⅞	-----	4	4½, 5, 5½, 6	----------

TABLE 5.—*Ferrous pipe nipples, right-and-left standard weight and extra strong, black, iron-pipe sizes and lengths*

Iron-pipe size	Length
	Inches
⅜	4
½	4
¾	4
1	4
1¼	4
1½	4
2	4

13. Brass and copper pipe nipples shall be of the respective dimensions given in tables 6, 7, and 8. Special sizes and lengths may be specified when required. Special lengths shall not vary more than 1/16 inch over or under the lengths required by the purchase order.

TABLE 6.—*Brass and copper pipe nipples, standard weight, standard pipe sizes and lengths*

Standard pipe size	Lengths			
	Close	Special short	Short	Long
	Inches	*Inches*	*Inches*	*Inches*
1/8	3/4	-----	1 1/2	2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
1/4	7/8	-----	1 1/2	2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
3/8	1	-----	1 1/2	2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
1/2	1 1/8	-----	1 1/2	2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
3/4	1 3/8	-----	2	2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
1	1 1/2	-----	2	2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
1 1/4	1 5/8	2	2 1/2	3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
1 1/2	1 3/4	2	2 1/2	3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
2	2	-----	2 1/2	3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
2 1/2	2 1/2	-----	3	3 1/2, 4, 4 1/2, 5, 5 1/2, 6
3	2 5/8	-----	3	3 1/2, 4, 4 1/2, 5, 5 1/2, 6
4	2 7/8	-----	4	4 1/2, 5, 5 1/2, 6
5	3	4	4 1/2	5, 5 1/2, 6
6	3 1/8	4	4 1/2	5, 5 1/2, 6

TABLE 7.—*Brass and copper pipe nipples, extra strong, standard pipe sizes and lengths*

Standard pipe size	Lengths		
	Close	Short	Long
	Inches	*Inches*	*Inches*
1/8	3/4	-----	2, 3, 4, 5, 6
1/4	7/8	-----	2, 3, 4, 5, 6
3/8	1	-----	2, 3, 4, 5, 6
1/2	1 1/8	-----	2, 3, 4, 5
3/4	1 3/8	2	3, 4, 5, 6
1	1 1/2	2	3, 4, 5, 6
1 1/4	1 5/8	-----	3, 4, 5, 6
1 1/2	1 3/4	-----	3, 4, 5, 6
2	2	-----	3, 4, 5, 6

TABLE 8.—*Brass and copper pipe nipples, right-and-left, standard weight, standard pipe sizes and lengths*

Standard pipe size	Length
	Inches
3/8	4
1/2	4
3/4	4
1	4
1 1/4	4
1 1/2	4
2	4

PACKAGING

14. The standard assortments of ferrous pipe nipples, black- and zinc-coated (hot-dip galvanized), including the total number contained in a carton, are given in table 9.

TABLE 9.—*Standard assortments of standard weight black or galvanized ferrous nipples*

[Number contained in carton]

Iron-pipe size	Close	Length in inches										Total
		Short	Long				Extra long					
		1½	2	2½	3	3½	4	4½	5	5½	6	
¼	20	10	15	10	10	5	10	5	5	5	5	100
⅜	20	10	15	10	10	5	10	5	5	5	5	100
½	20	10	15	10	10	5	10	5	5	5	5	100
¾	25	--	20	10	10	5	10	5	5	5	5	100
1	15	--	12	5	12	3	12	3	5	3	5	75

15. The standard assortments of brass and copper pipe nipples including the total number contained in a carton are given in table 10.

TABLE 10.—*Standard assortments of standard weight brass and copper pipe nipples*

[Number contained in carton]

Standard pipe size	Close	Length in inches										Total
		1½	2	2½	3	3½	4	4½	5	5½	6	
⅜	20	10	15	10	10	5	10	5	5	5	5	100
½	20	10	15	10	10	5	10	5	5	5	5	100
¾	25	--	20	10	10	5	10	5	5	5	5	100
1	15	--	12	5	12	3	12	3	5	3	5	75
⅜	12	5	5	5	5	5	5	2	2	2	2	--
½	12	5	5	5	5	5	5	2	2	2	2	--
¾	12	5	5	5	5	5	5	2	2	2	2	--
1	10	--	10	5	5	3	5	2	4	2	4	--

LABELING

16. Cartons containing standard assortments of lengths, as shown in tables 9 and 10, shall be labeled to show (1) the total number in the carton, (2) the size, (3) the kind of metal, and (4) the words "Standard Assortment", for example "100 — 3/4-inch Galvanized Steel Pipe Nipples—Standard Assortment." Cartons containing other than standard assortments of lengths shall be labeled to give the same information, except that the words "Standard Assortment" shall be replaced by the number and length of the contents, for example, "100 — ¾- × 2-inch Galvanized Steel Pipe Nipples" or "100 — ¾-inch Black Wrought-Iron Pipe Nipples—Lengths 25—1½", 50—2", 25—2½"."

17. In order that the consumer may become more familiar with standard pipe nipples and may have confidence in them, it is recom-

mended that pipe nipples conforming to the requirements of this standard be accompanied by a certificate, tag, sticker, card, or other label incorporating the following wording:

Guaranteed pipe nipples conforming to CS5–46. Made from new, full-weight, mill-tested pipe.

(Company or organization)

EFFECTIVE DATE

18. The standard is effective for new production from February 15, 1946.

STANDING COMMITTEE

19. 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. 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.

R. H. Sonneborn (chairman) Chicago Nipple Manufacturing Co., 1966 N. Southport Avenue, Chicago 14, Ill.
W. P. Kliment, Engineering and Research Division, Crane Co., 836 So. Michigan Avenue, Chicago 5, Ill.
A. G. Getty, American Radiator and Standard Sanitary Corporation, P. O. Box 1226 (Bessemer Building), Pittsburgh 30, Pa.
Raymond Grof, Campbell Manufacturing Co., Inc., Boyertown, Pa.
D. W. Howe, Ware Coupling & Nipple Co., Ware, Mass.
R. B. Shoe, Shoe-Letcher Co., 214 Provost St., Jersey City, N. J.
James A. Messer, James A. Messer Co., Inc., 1206 K St., N. W., Washington, D. C.
W. J. Spillane, James B. Clow and Sons, Inc., 201 N. Talman Ave., Chicago, Ill.
C. S. Rambo, Central Supply Association, 228 N. LaSalle Street, Chicago, Ill.
Jere L. Murphy, National Association of Master Plumbers, 340 E. 44th St., New York, N. Y.
A. V. Hutchinson, American Society of Heating and Ventilating Engineers, 51 Madison Avenue, New York, N. Y.
Thomas G. English, City of Pittsburgh, Pittsburgh, Pa.
John A. Bronzonie, American Society of Sanitary Engineering, 114 District Building, Washington 4, D. C.

HISTORY OF PROJECT

20. *General Conference.*—On June 29, 1928, a general conference of representative manufacturers, users, and general interests adopted commercial standards for steel and wrought-iron pipe nipples, which were later accepted by those directly concerned and published as Commercial Standards CS5–29 and CS6–29, respectively. These two standards were effective for new production from January 1, 1929.

21. Similarly, on December 14, 1928, a general conference adopted a commercial standard for brass pipe nipples, which subsequently was accepted by those directly concerned and published as Commercial Standard CS10–29, effective for new production from July 1, 1929.

22. The chief purpose of these standards was to draw a clear line of demarcation between pipe nipples made from new, tested pipe and those made from used or second-hand pipe or from crop ends.

23. *First revision.*—On October 27, 1930, in accordance with the recommendations of the standing committee, a Proposed Revision of Wrought Iron Pipe Nipples, CS6–29, was circulated to the industry for written acceptance. This revision included the definition for wrought iron adopted by the ASTM, as well as changes in actual thickness and inside diameters of pipe on the basis of the density of wrought iron instead of steel, as formerly. The revised commercial standard was accepted by those concerned and published as Commercial Standard CS6–31, effective for new production and clearance of existing stocks from May 1, 1931.

24. *Second revision and consolidation.*—In order to bring these standards up to date and simplify reference thereto, the National Association of Pipe Nipple Manufacturers recommended the revision and consolidation of the three commercial standards. Following endorsement of this proposal by the standing committee, the recommended revision and consolidation was circulated on January 10, 1940, to the trade for written acceptances. The establishment of the revised standard was announced on April 10, 1940, effective for new production May 10, 1940.

25. *First revision of consolidated standard.*—On recommendation of the National Association of Pipe Nipple Manufacturers, Inc., and with the approval of the Standing Committee, a further revision eliminating standard assortments of 50; reducing the number of sizes and lengths of right-and-left nipples; and otherwise bringing the standard up to date, was circulated on November 2, 1945, to the trade for written acceptance. The establishment of the revised standard was announced on January 15, 1946 as effective for new production from February 15, 1946.

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, 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 25, D. C.

Gentlemen:

We believe that the Commercial Standard CS5–46 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production [1] distribution [1] purchase [1] testing [1]

of pipe nipples.
We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer _____
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer _____

Organization _____
(Fill in exactly as it should be listed)

Street address _____

City, zone, and State _____

[1] Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General Support" should be added after the signature.

(Cut on this line)

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 those concerned. 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 interested groups 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 interested parties 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 a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

ACCEPTORS

26. The organizations listed below have individually accepted these grading rules as far as practicable in the production, distribution, testing or purchase of pipe nipples. In accepting the standard they reserve the right to depart therefrom as they individually deem advisable. It is expected that articles which actually comply with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

ASSOCIATIONS

(GENERAL SUPPORT)

American Specification Institute, Chicago, Ill.
American Supply & Machinery Manufacturers Association, Pittsburgh, Pa.
Heating, Piping & Air Conditioning Contractors District of Columbia Association, Washington, D. C.
Heating, Piping & Air Conditioning Contractors Association, Norfolk, Va.
Heating, Piping & Air Conditioning Contractors National Association, New York, N. Y.
National Association of Master Plumbers, New York, N. Y.
National Association of Pipe Nipple Manufacturers Inc., Pittsburgh, Pa.
Producers Council, Inc., The, Washington, D. C.
Western Plumbing Officials Association, Los Angeles, Calif.

FIRMS

Adams, Franklin O., Tampa, Fla.
Aitchison-Richmond Supply Co., St. Joseph, Mo.
Allen Manufacturing Co., W. D., Chicago, Ill.
Allentown Boiler Works, Allentown, Pa.
Alloy Steel Products Co., Linden, N. J.
Altfillisch, Charles, Decorah, Iowa.
American Pipe & Steel Corporation, Alhambra, Calif.
American Plumbing & Steam Supply Co., Tacoma, Wash.
American Radiator & Standard Sanitary Corporation, Pittsburgh, Pa.
American Rolling Mill Co., The, Middletown, Ohio.
Appleby Bros. & Whittaker Co., Harrisburg, Pa.
Attwood Brass Works, Grand Rapids, Mich.
Baldwin Supply Co., Charleston, W. Va.
Bayonne Nipple Co., Bayonne, N. J.
Beall Bros. Supply Co., Alton, Ill.
Behrer Nason Co., Inc., New York, N. Y.
Bellingham Plumbing Supply Co., Bellingham Wash.
Biggs-Kurtz Hardware Co., The, Grand Junction, Colo.
Bishop, Horatio W., La Mesa, Calif.
Blackwell-Wielandy Co., St. Louis, Mo.
Blake-Rounds Supply Co., Portland, Maine.
Blithe, Wesley Lesher, Philadelphia, Pa.
Blue Ridge Pipe & Nipple Co., Greenstone, Pa.
Boehm, George A., New York, N. Y.
Bohn & Kern Supply Co., Zanesville, Ohio.
Boston Supply Co., Inc., Boston, Mass.
Bradley Supply Co., Chicago, Ill.
Brass Products Co., Chicago, Ill.
Brazer, Clarence W., New York, N. Y.
Bridge Plumbers Supply Co., New York, N. Y.
Bridgeport Brass Co., Bridgeport, Conn.
Brown Co., P. J., Chicago, Ill.
Brust & Brust, Milwaukee, Wis.
Bucky, Fred W., Jr., Jacksonville, Fla.
Buechner & Orth, St. Paul, Minn. (General support.)
Buffalo, City of, Department of Public Works, Division of Buildings, Architectural Service, Buffalo, N. Y.
Byers Co., A. M., Pittsburgh, Pa.
Calumet & Hecla Consolidated Copper Co., Wolverine Tube Division, Detroit, Mich.
Camlet, J. Thomas, Passaic, N. J.
Campbell Manufacturing Co., Inc., Boyertown, Pa.
Canfield Supply Co., Kingston, N. Y.
Cannon & Mullen, Salt Lake City, Utah.
Capital City Supply Co., Charleston, W. Va.
Capitol Manufacturing & Supply Co., The, Columbus, Ohio.
Capitol Pipe & Nipple Manufacturing Co., Detroit, Mich.
Cedar Rapids Pump & Supply Co., Cedar Rapids, Iowa.
Central Engineering & Supply Co., Inc., Passaic, N. J.
Central Plumbing Supply Co., The, Bridgeport, Conn.
Chandler Co., The, Cedar Rapids, Iowa.
Chapin, Rollin C., Minneapolis, Minn. (General support.)
Chicago Nipple Manufacturing Co., Chicago, Ill.
Chicago Tube & Iron Co., Chicago, Ill.
City Plumbing & Heating Supply Co., Gainesville Ga.
Clendenin Bros., Inc., Baltimore, Md.
Clow & Sons, James B., Chicago, Ill.
Cohen & Son, P., Brooklyn, N. Y.
Cole Supply Co., Geo. H., Troy, N. Y.
Columbia Pipe & Supply Co., Chicago, Ill.
Connecticut Plumbing Supply Co., Stamford, Conn.
Consolidated Supply Co., Portland, Oreg.
Continental Nipple Manufacturing Co., Chicago, Ill.
Cooper Supply Co., Harry, Springfield, Mo.
Crane Co., Chicago, Ill.
Cressman Co., N. C., Philadelphia, Pa.
Dallas Power & Light Co., Dallas, Tex.
Dalziel Plumbing Supplies, San Francisco, Calif.
Danser Manufacturing & Supply Co., The, Weston, W. Va.
Detroit, City of, Department of Public Works, Detroit, Mich.
Detroit Edison Co., The, Detroit, Mich.
District of Columbia Government, Washington, D. C.
Eastern Foundry Co., The, Boyertown, Pa.
Elizabeth Plumbing & Heating Supply Co., Elizabeth, N. J.
Ellis & Sons, Inc., Sol, Chicago, Ill.
Erie Railroad Co., Cleveland, Ohio.
Estabrook's Sons, R., (Division of Herrick Co.), South Boston, Mass.
Fall River Steam & Gas Pipe Co., (Corporation), Fall River, Mass.
Fitchburg Plumbing Supply Co., Fitchburg, Mass.
Flannagan, Eric G., Henderson, N. C.
Fleck Co., Camden, N. J.
Florence Pipe Foundry & Machine Co., Florence, N. J.
Fort Pitt Supply Co., Pittsburgh, Pa.
Frick & Lindsay Co., Pittsburgh, Pa.
Galloup Pipe & Supply Co., Battle Creek, Mich.
Ganteaume & McMullen, Boston, Mass.
Glauber, Inc., Sam S., New York, N. Y.
Globe Machinery & Supply Co., Des Moines, Iowa.
Goodrich Co., The B. F., Akron, Ohio.

Goodrich Chemical Co., B. F. (Division of The B. F. Goodrich Co.), Cleveland, Ohio.
Grabler Manufacturing Co., The, Cleveland, Ohio.
Grady Plumbing Co., Carbondale, Ill.
Grinnell Corporation, Providence, R. I.
Grobstein Construction Co., Lakewood, N. J.
Groeniger, Wm. C., Columbus, Ohio.
Hajoca Corporation, Lansdowne, Pa.
Hartford Plumbing Supply, Inc., Hartford, Conn.
Hasness, Carlisle D., Harrisburg, Pa.
Hermitage Engineering Co., Nashville, Tenn.
Hoe Supply Co., Christopher, Ill.
Holsman & Holsman & Klekamp, Chicago, Ill.
Hope, Frank L., Jr., San Diego, Calif.
Hoppe, M. F., Washington, D. C. (General support).
Hughes Supply Co., The, Mansfield, Ohio.
Hunt Co., H. W., Reading, Mass.
Hunt Co., Robert W., Chicago, Ill. (General support).
Hunting Co., The, Rochester, N. Y.
Illinois Malleable Iron Co., Chicago, Ill.
Illinois Supply Co., Chicago, Ill.
Integrity Supply, Inc., New York, N. Y.
Johnson Co., J. D., Pensacola, Fla.
Jones Kay Plumbing Co., Pendleton, Oreg.
Kalispell Mercantile Co., Kalispell, Mont.
Keating Pipe Bending Co., Inc., The E. F., New York, N. Y.
Keich & O'Brien, Warren, Ohio.
Kellogg Co., The M. W., New York, N. Y.
Kiefaber Co., The W. H., Dayton, Ohio.
Kleinman, Russell F., Philadelphia, Pa.
Knapp Supply Co., The, Muncie, Ind.
Koller Bros. Co., The, Cleveland, Ohio.
La Crosse Plumbing Supply Co., La Crosse, Wis.
Lansdale Nipple Co., Lansdale, Pa.
Leader Iron Works, Inc., Decatur, Ill.
Long Plumbing & Heating Supply Co., Chicago, Ill.
Malleable Iron Fittings Co., Branford, Conn.
Malone Plumbing Supply Co., S. S. Pittsburgh, Pa.
Mann & Co., Hutchinson, Kans.
McArdle & Cooney, Inc., Philadelphia, Pa.
Mechanical Construction Corporation, Hibbing, Minn.
Merkel Bros. Co., The, Cincinnati, Ohio.
Michigan State College, Mechanical Engineering Department, East Lansing, Mich.
Mineola Plumbing Supply Co., Inc., Mineola, L. I., N. Y.
Missouri Pipe Fittings Co., St. Louis, Mo.
Moore Dry Dock Co., Oakland, Calif.
Mott Bros. Co., Rockford, Ill.
Munroe & Sons Manufacturing Corporation, R., Pittsburgh, Pa.
National Supply Co., The, Spang Chalfant Division, Pittsburgh, Pa.
Naylor Pipe Co., Chicago, Ill.
Nelson Co., Detroit, Mich.
New Jersey Engineering & Supply Co., Passaic, N.J.
Norvell-Wilder Supply Co., Beaumont, Tex.
Ohio Pipe & Supply Co., Inc., The, Cleveland, Ohio.
Orange Memorial Hospital, Orange, N. J.
Pacific Nipple Co., San Francisco, Calif.
Peerless-Oklahoma Co., Oklahoma City, Okla.
Pehrson, G. O., Spokane, Wash.
Pittsburgh Des Moines Steel Co., Pittsburgh, Pa.
Pittsburgh Nipple Works, Pittsburgh, Pa.
Pleasantville Plumbing Supply Co., Pleasantville, N. J.
Plumbers Supply Co., New Bedford, Mass.
Plumbers Supply Co., Tulsa, Okla.
Plumbing & Heating Supply Co., Inc., The, Nashville, Tenn.
Pollock Co., The William B., Youngstown, Ohio.
R & R Plumbing Supply Corporation, Worcester, Mass.
Raffel's Plumbing & Heating Supply House, Chicago, Ill.
Rayl Co., The, Detroit, Mich.
Richmond Engineering Co., Inc., Richmond, Va.
Roberts-Hamilton Co., Minneapolis, Minn.
Rodgers Supply Co., McKees Rocks, Pa.
Rom Co., The Robert, Milwaukee, Wis.
Ross-Willoughby Co., The, Columbus, Ohio.
Sacramento Pipe Works, Sacramento, Calif.
St. Louis, City of, Board of Education, St. Louis, Mo.
Sanitary Plumbing Co., Redlands, Calif.
Sawhill Manufacturing Co., The, Sharon, Pa.
Schnitzer Alloy Products Co., Elizabeth, N. J.
Sears, Roebuck & Co., Chicago, Ill.
Seashore Supply Co., Atlantic City, N. J.
Seattle Plumbing Supply Co., Seattle, Wash.
Shaw-Kendall Engineering Co., The, Toledo, Ohio.
Shoe-Letcher Co., Jersey City, N. J.
Smith, Emery & Co., San Francisco, Calif.
Smith, Hinchman & Grylls, Detroit, Mich. (General support).
Smolka Co., Inc., New York, N. Y.
South Bend Supply Co., The, South Bend, Ind.
Southern Nipple Manufacturing Co., Dallas, Tex.
Southside Plumbing & Heating Maintenance, Freeport, N. Y.
Spangler Plumbing Co., Birmingham, Ala.
Specification Record, Chicago, Ill.
Standard Nipple Works, Newark, N. J.
Standard Supply Co., Portsmouth, Ohio.
Star Nipple Co., Chicago, Ill.
Streeter, D. D., Brooklyn, N. Y.
Sullivan County Plumbing & Heating Supply Co., Inc., Liberty, N. Y.
Superior Pipe Specialties Co., Chicago, Ill.
Swank Hardware Co., The, Johnstown, Pa.
Tallman Co., St. Louis, Mo.
Taylor Instrument Co's., Rochester, N. Y.
Thornley Supply Co., The, Pawtucket, R. I.
Toye Supply Co., E. W., Winona, Minn.
Trenton Pipe Nipple Co., Trenton, N. J.
Trumbull Plumbing Supply Co., Warren, Ohio.
Twin City Steel Manufacturing Co., Inc., Minneapolis, Minn.
United States Testing Co., Inc., Hoboken, N. J. (General support).
Van Camp Hardware & Iron Co., Indianapolis, Ind.
Van Denburg Supply Co., Rockford, Ill.
Virginia Polytechnic Institute, Blacksburg, Va.
Vogel & Sons Co., P. A., Louisville, Ky.
W. & K. Manufacturing Co., Blossburg, Pa.
Walworth Co., New York, N. Y.
Warren, Balderston Co., Trenton, N. J.
Ware Coupling & Nipple Co., Ware, Mass.
Waynesboro Nipple Works, Waynesboro, Pa.
Weakley-Watson-Miller Hardware Co., Brownwood, Tex.
Weatherhead Co., The, Cleveland, Ohio.
Weber & Co., Inc., C. L., Philadelphia, Pa.
Weekes & Son Co., John, Watertown, N. Y.
West, Albert E., Boston, Mass.
Westchester Square Plumbing Supply Co., Inc., Bronx, N. Y.
Western Nipple Manufacturing Co., Los Angeles, Calif.
Westinghouse Electric Corporation, East Pittsburgh, Pa.
Wheeling Steel Corporation, Wheeling, W. Va.
Wholesale Plumbing & Heating Equipment, York, Pa.
Wides Pipe Supply Co., Cincinnati, Ohio.
Wolverine Brass Works, Grand Rapids, Mich.
Woodrow Corporation, Chicago, Ill.
Woolcock Plumbing & Heating Co., Niagara Falls, N. Y.
Young Supply Co., W. B., Kansas City, Mo.
Zimmerman Plumbing Supply Co., Inc., Staten Island, N. Y.

U. S. GOVERNMENT

Federal Works Agency, Public Buildings Administration, Washington, D. C. (General support).
Interior, U. S. Department of the, Office of Indian Affairs, Chicago, Ill.
Justice, U. S. Department of, Bureau of Prisons, Construction Division, Washington, D. C.
National Housing Agency, Washington, D. C.

COMMERCIAL STANDARDS

CS No. ITEM

0–40. Commercial standards and their value to business (third edition).
1–42. Clinical thermometers (third edition).
2–30. Mopsticks.
3–40. Stoddard solvent (third edition).
4–29. Staple porcelain (all-clay) plumbing fixtures.
5–46. Pipe nipples; brass, cooper, steel and wrought-iron (second edition).
6–31. Wrought-iron pipe nipples (second edition). Superseded by CS5–46.
7–29. Standard weight malleable iron or steel screwed unions.
8–41. Gage blanks (third edition).
9–33. Builders' template hardware (second edition).
10–29 Brass pipe nipples. Superseded by CS5–46.
11–41. Moisture regains of cotton yarns (second edition).
12–40. Fuel oils (fifth edition).
13–44. Dress patterns (fourth edition).
14–43. Boys' button-on waists, shirts, junior and sport shirts (made from woven fabrics) (third edition).
15–46. Men's pajamas (made from woven fabrics) (second edition).
16–29. Wall paper.
17–42. Diamond core drill fittings (third edition).
18–29. Hickory golf shafts.
19–32. Foundry patterns of wood (second edition).
20–42. Staple vitreous china plumbing fixtures (third edition).
21–39. Interchangeable ground-glass joints, stopcocks, and stoppers (fourth edition).
22–40. Builders' hardware (nontemplate) (second edition).
23–30. Feldspar.
24–43. Screw threads and tap-drill sizes.
25–30. Special screw threads. Superseded by CS24–43.
26–30. Aromatic red cedar closet lining.
27–36. Mirrors (second edition).
28–46. Cotton fabric tents, tarpaulins and covers (second edition).
29–31. Staple seats for water-closet bowls.
30–31. Colors for sanitary ware.
31–38. Wood shingles (fourth edition).
32–31. Cotton cloth for rubber and pyroxylin coating.
33–43. Knit underwear (exclusive of rayon) (second edition).
34–31. Bag, case, and strap leather.
35–42. Plywood (hardwood and eastern red cedar) (second edition).
36–33. Fourdrinier wire cloth (second edition).
37–31. Steel bonc plates and screws.
38–32. Hospital rubber sheeting.
39–37. Wool and part wool blankets (second edition). (Withdrawn as commercial standard, July 14, 1941).
40–32. Surgeons' rubber gloves.
41–32. Surgeons' latex gloves.
42–43. Structural fiber insulating board (third edition).
43–32. Grading of sulphonated oils.
44–32. Apple wraps.
45–45. Douglas fir plywood (sixth edition).
46–40. Hosiery lengths and sizes (third edition).
47–34. Marking of gold-filled and rolled-gold-plate articles other than watch cases.
48–40. Domestic burners for Pennsylvania anthracite (underfeed type) (second edition).

CS No. ITEM

49–34. Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
50–34. Binders board for bookbinding and other purposes.
51–35. Marking articles made of silver in combination with gold.
52–35. Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
53–35. Colors and finishes for cast stone.
54–35. Mattresses for hospitals.
55–35. Mattresses for institutions.
56–41. Oak flooring (second edition).
57–40. Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings (second edition).
58–36. Woven elastic fabrics for use in overalls (overall elastic webbing).
59–44. Textiles—testing and reporting (fourth edition).
60–36. Hardwood dimension lumber.
61–37. Wood-slat venetian blinds.
62–38. Colors for kitchen accessories.
63–38. Colors for bathroom accessories.
64–37. Walnut venecrs.
65–43. Methods of analysis and of reporting fiber composition of textile products (second edition).
66–38. Marking of articles made wholly or in part of platinum.
67–38. Marking articles made of karat gold.
68–38. Liquid hypochlorite disinfectant, deodorant, and germicide.
69–38. Pine oil disinfectant.
70–41. Phenolic disinfectant (emulsifying type) (second edition) (published with CS71–41).
71–41. Phenolic disinfectant (soluble type) (second edition) (published with CS70–41).
72–38. Household insecticide (liquid spray type).
73–45. Old growth Douglas fir standard stock doors (third edition).
74–39. Solid hardwood wall paneling.
75–42. Automatic mechanical draft oil burners designed for domestic installations (second edition).
76–39. Hardwood interior trim and molding.
77–40. Sanitary cast-iron enameled ware.
78–40. Ground-and-polished lenses for sun glasses (second edition) (published with CS79–40).
79–40. Blown, drawn, and dropped lenses for sun glasscs (second edition) (published with CS78–40).
80–41. Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).
81–41. Adverse-weather lamps for vehicles (after market).
82–41. Inner-controlled spotlamps for vehicles (after market).
83–41. Clearance, marker, and identification lamps for vehicles (after market).
84–41. Electric tail lamps for vehicles (after market).
85–41. Electric license-plate lamps for vehicles (after market).
86–41. Electric stop lamps for vehicles (after market).
87–41. Red electric warning lanterns.
88–41. Liquid-burning flares.
89–40. Hardwood stair treads and risers.

CS No.	ITEM
90– .	(Reserved for power shovels and cranes.)
91–41.	Factory-fitted Douglas fir entrance doors.
92–41.	Cedar, cypress and redwood tank stock lumber.
93–41.	Portable electric drills (exclusive of high frequency).
94–41.	Calking lead.
95–41.	Lead pipe.
96–41.	Lead traps and bends.
97–42.	Electric supplementary driving and passing lamps for vehicles (after market).
98–42.	Artists' oil paints.
99–42.	Gas floor furnaces—gravity circulating type.
100–44.	Porcelain-enameled steel utensils (second edition).
101–43.	Flue-connected oil-burning space heaters equipped with vaporizing pot-type burners.
102– .	(Reserved for Diesel and fuel-oil engines.)
103–42.	Cotton and rayon velour (jacquard and plain).
104–46.	Warm-air furnaces equipped with vaporizing pot-type oil burners (second edition).
105–43.	Mineral wool; loose granulated, or felted form, in low-temperature installations.
106–44.	Boys' pajama sizes (woven fabrics) (second edition).
107–45.	Commercial electric-refrigeration condensing units (second edition).
108–43.	Treading automobile and truck tires.
109–44.	Solid-fuel-burning forced-air furnaces.
110–43.	Tire repairs — vulcanized (passenger, truck, and bus tires).
111–43.	Earthenware (vitreous-glazed) plumbing fixtures.
112–43.	Homogeneous fiber wallboard.
113–44.	Oil-burning floor furnaces equipped with vaporizing pot-type burners.
114–43.	Hospital sheeting for mattress protection.
115–44.	Porcelain-enameled tanks for domestic use.
116–44.	Bituminized-fiber drain and sewer pipe.
117–44.	Mineral wool; blankets, blocks, insulating cement, and pipe insulation for heated industrial equipment.
118–44.	Marketing of jewelry and novelties of silver.
(E)119–45.[1]	Dial indicators (for linear measurements).
120–44.	Standard stock ponderosa pine doors.
121–45.	Women's slip sizes (woven fabrics).
122–45.	Western hemlock plywood.
123–45.	Grading of diamond powder.
(E)124–45.	Master disks.
125–45.	Prefabricated homes.
126–45.	Tank mounted air compressors.
127–45.	Self-contained mechanically refrigerated drinking water coolers.
128–45.	Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
129–46.	Materials for safety wearing apparel.
130–46.	Color materials for art education in schools.
131–46.	Industrial mineral wool products, all types—testing and reporting.
132–46.	Hardware cloth.
133–46.	Woven wire netting.

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, National Bureau of Standards, Washington 25, D. C.

[1] Where "(E)" precedes the CS number, it indicates an emergency commercial standard, drafted under war conditions with a view toward early revision.

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