

U. S. DEPARTMENT OF COMMERCE

ROY D. CHAPIN, Secretary

BUREAU OF STANDARDS

LYMAN J. BRIGGS, Acting Director

DOUGLAS-FIR PLYWOOD

COMMERCIAL STANDARD CS45-33

[Issued March 2, 1933]

Effective date for production February 15, 1933



**A RECORDED STANDARD OF THE
INDUSTRY**

**UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1933**

PROMULGATION STATEMENT

At the instance of the principal manufacturers of Douglas-fir plywood, a general conference of the leading producers, together with some distributor and consumer interests, adopted Commercial Standard CS45-33 for the product. The industry has since accepted and approved for promulgation by the Department of Commerce through the Bureau of Standards the commercial standard as shown herein.

The standard became effective February 15, 1933.

Promulgation recommended.

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

Promulgated.

Lyman J. Briggs,
Acting Director, Bureau of Standards.

Promulgation approved.

Roy D. Chapin,
Secretary of Commerce.

DOUGLAS-FIR PLYWOOD ¹

COMMERCIAL STANDARD CS45-33

PURPOSE

1. Because of the extended application of Douglas-fir plywood to a wide number of new uses, the following standard grading rules are offered as a universal basis of understanding in the industry. General adoption and use of this standard will facilitate procurement of the proper grade of material for its varied uses and provide a better understanding between buyer and seller. Architects, engineers, contractors, industrial users, and home owners will thus be able to specify their needs from nationally recognized grades.

SCOPE

2. These rules cover Douglas-fir plywood; a laminated board for paneling, sheathing, concrete forms, cabinetwork, and industrial uses. In addition, there is included grade specifications for door panels and concrete-form material, together with export designations and a glossary of terms.

GENERAL REQUIREMENTS

3. All Douglas-fir plywood sold as of commercial-standard quality shall meet the following general requirements:

WORKMANSHIP

4. It shall be smoothly sanded on two sides unless otherwise specified. It shall be well manufactured and free from blisters, laps, etc., except as permitted in the specific rules for the various grades.

CONSTRUCTION

5. Veneers one-twelfth inch or more shall be used in the construction of panels one-fourth inch and upward in thickness. The veneer thickness shall be measured before the panel is sanded.

GLUING

6. It shall be tightly glued with water-resistant glue.

PACKING

7. It shall be securely loaded or packed to insure delivery in a clean and serviceable condition.

¹ Douglas-fir plywood is a built-up board of laminated veneers in which the grain of each piece is at right angles to the one adjacent to it. The kiln-dried veneer is united under high pressure with a water-resistant glue, making the joints as strong or stronger than the wood itself. The alternating direction of the grain with each contiguous layer of wood equalizes the strains which commonly occur in solid lumber and in this way minimizes shrinkage and warping of the product and prevents splitting.

INSPECTION

8. All plywood guaranteed to conform to the commercial-standard grading rules is sold subject to inspection in the white only, except concrete-form material, which may have a priming of oil or other preparation before shipment. All complaints regarding the quality of any shipment must be made within 15 days from receipt thereof.

DETAIL REQUIREMENTS

9. Douglas-fir plywood shall be graded according to both sides of the piece into the following standard grades. The grade descriptions set forth the minimum requirements, and therefore the majority of panels in any shipment will exceed the specification given.

GOOD 2 SIDES (G2S)

10. Each face shall be of a single piece of smoothly cut veneer of 100 per cent heartwood, free from knots, splits, checks, pitch pockets, and other open defects. The faces shall be a yellow or pinkish color without stain. Shims that occur only at the ends of panels and inconspicuous well-matched small patches not to exceed $\frac{3}{8}$ inch wide by $2\frac{1}{2}$ inches long shall be admitted. This grade is required for uses where a light stain or natural finish is desired.

GOOD 1 SIDE (G1S)

11. One face shall be equal to that described under Good 2 Sides grade, while the opposite face shall be equal to the Sound 2 Sides grade described below.

SOUND 2 SIDES (SO2S)

12. Each face shall be of one or more pieces of firm smoothly cut veneer. When of more than one piece, it shall be well joined, edge glued, and reasonably matched for grain and color at the joints.

13. It shall be free from knots, splits, checks, pitch pockets, and other open defects. Streaks, discolorations, sapwood, shims, and neatly made patches shall be admitted. This grade shall present a smooth surface suitable for painting.

SOUND 1 SIDE (SO1S)

14. One face shall be equal to that described under Sound 2 Sides grade. The reverse shall admit knots, knot holes, pitch pockets, splits, and other defects in number and size that will not seriously affect the strength or serviceability of the panel.

WALLBOARD (WB)

15. This is a 3-ply board of $\frac{5}{16}$ or $\frac{1}{4}$ inch thickness, made only in 32 or 48 inch widths, the faces of which shall be equal to those described under Sound 1 Side grade.

CONCRETE-FORM PLYWOOD

16. Standard thickness for form plywood shall be $\frac{5}{8}$ inch after sanding. Other thicknesses for very heavy or very light work are obtainable on special order. Form lining shall be $\frac{1}{4}$ inch thick after

sanding. Standard form plywood shall be built up of five thicknesses of veneer, of which the two outside plies are at least $\frac{1}{8}$ inch thick before sanding. Form plywood shall be specially glued with a highly water-resistant glue. An occasional knot hole or split is permissible in the center or core, but no knot holes are permitted in the cross-banding.

17. General grading rules are the same as for Sound 2 Sides, except that repairs shall be made with water-resistant glue. When so ordered, concrete-form plywood will be treated with a satisfactory form oil or other preparation.

DOOR PANELS

NUMBER 1 DOOR PANEL (NO. 1 D. P.)

18. Each face shall be of a single piece of smoothly cut veneer of 100 per cent heartwood, free from knots, splits, checks, pitch pockets, and other open defects. The color shall be yellowish or light pink. Not more than two of the following defects shall be allowed on each 10 square feet of panel surface: (a) Pitch streaks $\frac{1}{8}$ by 3 inches or $\frac{1}{4}$ by 3 inches if they blend with the color of the surrounding wood; (b) inconspicuous well-matched small patches; (c) small shims less than one-tenth the length of the panel, occurring only at end of panel.

NUMBER 2 DOOR PANEL (NO. 2 D. P.)

19. Each face shall be of a single piece of veneer that is free of knots and other open defects, but may admit medium stain and discoloration. Patches not to exceed $\frac{1}{8}$ by $2\frac{1}{2}$ inches and shims of any size when reasonably selected for color and grain, are admissible.

NUMBER 3 DOOR PANEL (NO. 3 D. P.)

20. Each face shall present a smooth surface suitable for painting. Discoloration, sound knots, unmatched patches, shims and/or taped faces are admissible.

EXPORT GRADES

21. Because of long usage in export trade, the following customary terms will be used to denote the several commercial standard grades.

Export designations	Commercial standard grades
A A-----	G2S
A-----	G1S
B-----	So2S

STANDARD SIZES

22. The standard panel sizes shall be as follows:

Widths.—From 12 inches, increasing by 2-inch units to 30 inches; also 36, 42, and 48 inches.

Lengths.—48, 60, 72, 84, and 96 inches.

Thicknesses.— $\frac{3}{16}$ inch (3-ply sanded 2 sides) increasing by $\frac{1}{16}$ inch units to $1\frac{1}{16}$ inch (7 ply).

23. The standard wallboard sizes shall be as follows:

Widths.—32 and 48 inches.

Lengths.—60, 72, 84, and 96 inches.

Thicknesses.— $\frac{3}{16}$ inch (3-ply unsanded) and $\frac{1}{4}$ inch (3-ply sanded 2 sides).

SIZE TOLERANCES

24. A tolerance of $\frac{1}{4}$ (0.0156) inch over or under the specified thickness shall be allowed on sanded panels and a tolerance of $\frac{1}{32}$ (0.0312) inch on unsanded panels.

25. A tolerance of $\frac{1}{32}$ inch over or under the specified length and/or width shall be allowed but all panels shall be square within $\frac{1}{8}$ inch.

GLOSSARY OF TERMS

Centers.—See Cores.

Checks.—Small splits running parallel to the grain of the wood caused chiefly by strains produced in seasoning.

Cores.—Cores or centers are the innermost layer in plywood construction.

Crossbanding.—Veneer used in the construction of plywood with five or more plies. In 5-ply construction it is placed at right angles between the cores and faces.

Defects, open.—Checks, splits, open joints, cracks, loose knots, and other defects interrupting the smooth continuity of the panel surface.

Heartwood.—Sometimes referred to as “heart”—the darker-colored and more durable wood substance occurring in the inner portion of the tree.

Knots.—Cross section of a branch or limb whose grain usually runs at right angles to that of the piece in which it is found.

Knot holes.—Voids produced by the dropping of knots from the wood in which they were originally embedded.

Lap.—A condition where the veneers used are so misplaced that one piece overlaps the other rather than making a smooth butt joint.

Patches.—Insertions of sound wood glued and placed into panels from which defective portions have been removed.

Pitch pockets.—Accumulations of thick resin.

Sapwood.—Sometimes referred to as “sap”—the lighter colored and less durable wood substance occurring in the outer portion of the tree.

Shim.—A long narrow patch not more than three-sixteenths inch wide.

Grade-use classification for Douglas-fir plywood

[The following is offered by the Douglas Fir Manufacturers (Inc.) as a rough guide to the grades generally suitable for the various uses listed]

Use	Grades					
	Good 2 sides	Good 1 side	Sound 2 sides	Sound 1 side	Walk-board	Form plywood
Amusement-park devices.....					×	
Archways.....		×	×			
Auto-body parts.....			×			
Benches.....				×		
Bins.....				×		
Bird houses.....						×
Bookcases.....		×				
Booth paneling.....	×		×			
Breakfast nooks.....		×				
Bulletin boards.....				×		
Cabinets:						
General.....		×				
Ice cream.....		×				
Kitchen.....		×				
Medicine.....		×				
Chests.....			×			
Closets.....					×	
Clothes chutes.....					×	
Concrete forms.....						×
Counter fronts.....		×				
Crack-proof ceilings.....					×	
Crack-proof walls.....					×	
Cupboards.....		×				
Desks.....		×				
Display racks.....	×		×			
Dust-proof drawer bottoms.....			×	×		
Dust-proof drawers.....			×			
Fixtures, store.....	×	×	×			
Flooring.....				×		
Flower boxes.....			×			
Furniture:						
Modern.....	×	×				
Novelty.....		×				
Garage lining.....				×	×	
Garages.....			×			×
Houses:						
Play.....						×
Portable.....			×		×	×
Insulation.....					×	
Ironing boards.....		×	×			
Lockers.....			×			
Machinery shelters.....			×		×	
Manual-training uses.....		×				
Mirror backs.....					×	
Partitions.....						×
Office.....	×	×				
Other.....	×	×				
Refrigerators.....			×			
Screens.....	×					
Sheathing.....					×	
Shelving.....			×			
Subflooring.....				×	×	
Sun room, porch.....					×	
Trunks.....			×			
Wardrobes.....			×			
Wainscoting.....		×				
Window displays.....	×					
Window seats.....		×		×		
Window valances.....	×					
Work benches.....				×		

GENERAL CONFERENCE

Pursuant to a request from the manufacturers of Douglas-fir plywood a general conference of manufacturers, distributors, and users of the product was held at the Winthrop Hotel, Tacoma, Wash., on August 17, 1932, to consider the adoption of standard grading rules for the guidance of the industry. The following were present:

ANDERSON, R. W., assistant sales manager, Washington Veneer Co.
 BARTELLS, G. L., research director, Douglas Fir Plywood Manufacturers.
 BLALOCK, SHIRL H., district manager, Bureau of Foreign and Domestic Commerce, Department of Commerce.
 BRINDLEY, RALPH, general superintendent, The Wheeler, Osgood Co.
 CALLOWAY, E. J., vice president and general manager, The Wheeler, Osgood Co.
 CLARK, BRUCE, vice president, Elliott Bay Mill Co.
 CLARK, HARRISON, secretary, Douglas Fir Plywood Manufacturers.
 COCHRAN, BURT, manager Seattle office, McCann-Erickson (Inc.).
 CRUVER, N. O., treasurer, The Wheeler, Osgood Co.
 DANIELS, E. W., vice president, Harbor Plywood Corporation.
 DAVIDSON, GEORGE W., Vancouver Plywood Co.
 DREW, C. W., representative, Weyerhaeuser Timber Co., National Association Building Owners and Managers.
 GARLAND, PHIL, manager, Oregon-Washington Plywood Co.
 HARRIS, DONALD, McCann-Erickson (Inc.).
 LINGAAS, J., manager, Plylock Corporation and M & M Plywood Corporation.
 NICOLAI, HARRY T., president, Oregon-Washington Plywood Co.
 NYMAN, V. A., secretary-treasurer, Olympia Veneer Co.
 SEKSTROM, M., manager, Aberdeen Plywood Co.
 SIMPSON, J. P., vice president and general manager, Buffelen Lumber & Manufacturing Co.
 VOGEL, JOSHUA H., architect, Baker, Vogel & Roush. Representing American Institute of Architects.
 WALTON, E. Q., vice president, Oregon-Washington Plywood Co.
 WUEST, A. R., vice president, Harbor Plywood Corporation.

The conference held at the request of manufacturers, under the auspices of the division of trade standards, Bureau of Standards, was presided over by Shirl H. Blalock, district manager of the Seattle office of the Bureau of Foreign and Domestic Commerce.

Manufacturers representing approximately 80 per cent of the production of Douglas-fir plywood were in attendance as well as others interested in the distribution and use of the product.

The proposed standard that had been tentatively drafted by a committee of manufacturers was thoroughly discussed and several constructive changes were made.

The general opinion of the conference was decidedly favorable to the adoption of definite grades for the manufacture, sale, and use of Douglas-fir plywood and upon motion by George W. Davidson, seconded by J. P. Simpson, it was voted:

To approve for recommendation to the entire industry the Commercial Standard for Douglas Fir Plywood with the adjustments as made by the conference.

STANDING COMMITTEE

A standing committee was appointed to represent the various interests of the industry and to receive all comments and suggestions for revision of the commercial standard.

No definite interval was fixed for revision of the standard, but the committee will meet at the call of the chairman when revision appears necessary.

The standing committee approved by the conference consists of the following:

RALPH BRINDLEY, chairman, The Wheeler, Osgood Co., Tacoma, Wash.
BRUCE CLARK, Elliott Bay Mill Co., Seattle, Wash.
M. SEKSTROM, Aberdeen Plywood Co., Aberdeen, Wash.
J. LINGAAS, Plylock Corporation, Portland, Oreg.; M & M Plywood Corporation, Longview, Wash.
H. S. MURPHY, Pacific Mutual Door Co., Tacoma, Wash.
CHARLES W. JACOB, John Bader Lumber Co., Chicago, Ill.
HARRY H. STEIDLE, ex officio secretary, Bureau of Standards, Washington, D. C.

EFFECTIVE DATE

The effective date for production and sale of Douglas-fir plywood under the commercial standard was set at February 15, 1933.

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,
BUREAU OF STANDARDS,
Washington, D. C.

GENTLEMEN: Having considered the statements on the reverse side of this sheet, we accept the Commercial Standard CS45-32 as our standard of practice in the { production¹
distribution¹ } of Douglas-fir plywood.

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)

Title

Company

Street address

City and State

.....

.....

.....

¹ 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.

TO THE ACCEPTOR

The following points are given in answer to the usual questions arising in connection with the acceptance form:

1. 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 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.

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 function performed by the Department of Commerce in the establishment of a commercial standard 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; and, fourth, to add all possible prestige to the enterprise by publication and promulgation when accepted by the industry.

When the standard has been indorsed 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

ASSOCIATIONS

American Institute of Architects
Washington, D. C. (in principle).
California Retail Lumber Dealers As-
sociation, Garden Grove, Calif.
Cleveland Lumber Institute, The,
Cleveland, Ohio.
Douglas Fir Plywood Promotion Bu-
reau, Seattle, Wash. (in principle).
Florida Lumber Millwork Associa-
tion, Orlando, Fla.
Illinois Lumber & Material Dealers
Association, Springfield, Ill.
Kentucky Retail Lumber Dealers As-
sociation, Louisville, Ky.
Lumbermen's Association of Texas,
Houston, Tex.
National Association of Purchasing
Agents, New York, N. Y.
National Lumber Manufacturers Asso-
ciation, Washington, D. C. (in
principle).
National Retail Lumber Dealers Asso-
ciation, Chicago, Ill.
New Jersey Lumbermen's Association,
Newark, N. J. (in principle).
Northeastern Retail Lumbermen's As-
sociation, Rochester, N. Y.
Ohio Association of Retail Lumber
Dealers, The, Xenia, Ohio.
Virginia Lumber & Building Supply
Dealers Association, Richmond, Va.
(in principle).
West Coast Lumbermen's Association,
Seattle, Wash. (in principle).
Wisconsin Retail Lumbermen's Asso-
ciation, Milwaukee, Wis.

FIRMS

Abel (Inc.), Seattle, Wash.
Aberdeen Plywood Co., Aberdeen,
Wash.
Adler Manufacturing Co., Louisville,
Ky.
Aircraft Plywood Corporation, Seattle,
Wash.
Allen Manufacturing Co. (Ltd.),
Shreveport, La.
American Body & Cab Co., Dixon, Ill.
American Sash & Door Co., Kansas
City, Mo.
Arizona Sash Door & Glass Co.,
Phoenix, Ariz.
Arrington & Co. (Inc.), W. C., Norfolk,
Va.

Bader Lumber Co., John, Chicago, Ill.
Bailey Lumber Co., Wytheville, Va.
Baker, Vogel & Roush, Seattle, Wash.
(in principle).
Baldridge Lumber Co., J. C., Albu-
querque, N. Mex.
Barber & Ross (Inc.), Washington,
D. C.
Basch & Co. (Inc.), Philadelphia, Pa.
Bay City Cabinet Co., Oakland, Calif.
Beaumont Lumber Co., Beaumont,
Tex.
Beaver Falls Planing Mill Co., Beaver
Falls, Pa.
Binswanger & Co. (Inc.), Richmond,
Va.
Black Mountain Lumber Co. (Inc.),
Black Mountain, N. C.
Bloom Co., The Alfred, Omaha, Nebr.
Bosman & Casson (Inc.), Harrison,
N. J.
Botsford Lumber Co., Winona, Minn.
Bowie Sash & Door Co., Wichita Falls,
Tex.
Braas & Kuhn Co., San Francisco,
Calif.
Brazelton Lumber Co., Waco, Tex.
Brown Lumber Co. (Inc.), Dan,
Anderson, S. C.
Brown Hardwood Co., G. H., Oakland,
Calif.
Buchanon & Smock Lumber Co.,
Ashbury Park, N. J.
Buffelen Lumber & Manufacturing
Co., Tacoma, Wash.
Building Investment, New York, N. Y.
(in principle).
Building Supplies Corporation, Norfolk
Va.
Built in Fixture Co., Berkeley, Calif.
Burrow Lumber Co., Canyon, Tex.
Cameron Lumber Co. (Inc.), Newburgh,
N. Y.
Campbell Co., New Wilmington, Pa.
Carlton-Ramson Lumber Co., Port-
land, Oreg.
Carrom Co., The, Ludington, Mich.
Cedar Lumber & Hardware Co., Cedar
City, Utah.
Cederquist Show Case & Cabinet Co.,
Los Angeles, Calif.
Center Lumber Co., Pittsburgh, Pa.
Central Door & Lumber Co., Portland,
Oreg.
Certain Lumber Co. (Inc.), W. N.,
Neodesha, Kans.

- Chapin Lumber Co., The, Aurora, Colo.
 Chapman Lumber Co., C. W., Waterloo, Iowa.
 Charlottesville Lumber Co., Charlottesville, Va.
 Churchill Cabinet Co., Chicago, Ill.
 Clark County Lumber Co., The, Springfield, Ohio.
 Clear Fir Lumber Co., Tacoma, Wash.
 Combs Lumber Co., Lexington, Ky.
 Connellsville Construction Co., Connellsville, Pa.
 Coolbaugh & Son Co., C. C., Gloucester City, N. J.
 Corddry Co., The, Snow Hill, Md.
 Corduan Manufacturing Co., Chicago, Ill.
 Costello Lumber Co., James, Liberty, Mo.
 Cottonwood Lumber Co., Cottonwood, Ariz.
 Davidson Sash & Door Co. (Inc.), Lake Charles, La.
 Davis Hardwood Co., San Francisco, Calif.
 Detroit Show Case Co., Detroit, Mich.
 Disbrow & Co., Cheyenne, Wyo.
 Doe Manufacturing Co. (Inc.), E. E., Orleans, Vt.
 Dover Lumber Co., Dover, N. J.
 "Dry-Kold" Refrigerator Co., The, Niles, Mich.
 Duluth Show Case Co., Duluth, Minn.
 Economy Lumber Co. (Inc.), Christiansburg, Va.
 Edwards Co. (Inc.), The O. M., Johnstown, N. Y.
 Elflein & Sons (Inc.), Frederick, Brooklyn, N. Y.
 Elliott Bay Lumber Co., Seattle, Wash.
 Elliott Bay Mill Co., Seattle, Wash.
 Farmers Lumber Co., Nashua, Mont.
 Fisher Co., The, Charles City, Iowa.
 Forsyth Hardwood Co., San Francisco, Calif.
 Frey Planing Mill Co., The, Louisville, Ky. (in principle).
 Fry Fulton Lumber Co., St. Louis, Mo.
 Fuller Goodman Co., Oshkosh, Wis.
 Gibson Refrigerator Co., Greenville, Mich.
 Goehring-Sothman Co., Grand Island, Nebr.
 Granger & Bollenbacher, Chicago, Ill.
 Grayling Box Co., Grayling, Mich.
 Great Northern Lumber Co., Wenatchee, Wash.
 Grogan-Robinson Lumber Co., Great Falls, Mont.
 Hagerstown Mantel & Furniture Co., Hagerstown, Md.
 Hallack & Howard Lumber Co., The, Denver, Colo.
 Hamilton Lumber Co., The, Hamilton, Ohio.
 Harbor Plywood Corporation, Hoquiam, Wash.
 Hartung & Hansen (Inc.), Seattle, Wash.
 Hawkeye Lumber Co., Oskaloosa, Iowa.
 Hays & Son, W. A., Blackwell, Okla.
 Henrich Panel Co., Buffalo, N. Y.
 Heyer Sons, W. H., Sumner, Iowa.
 Hill Top Lumber Co., Pittsburgh, Pa.
 Hinckley Lumber Co., The Dwight, Cincinnati, Ohio.
 Interior Woodwork Co., Milwaukee, Wis.
 Interstate Lumber Co., Missoula, Mont.
 Iowa Builders Supply Co., Cedar Rapids, Iowa.
 Jeter Lumber Co., Cameron, Tex.
 Kellogg & Sons Co., Charles C., Utica, N. Y.
 King Lumber Co., The, Bakersfield, Calif.
 Knepp, H. E., Lewistown, Pa.
 Koehl & Son (Inc.), John W., Los Angeles, Calif.
 Kulchar & Co., S., Oakland, Calif.
 Kullberg Manufacturing Co., Minneapolis, Minn. (in principle).
 Lambert Lumber Co., Leavenworth, Kans.
 Lander Lumber Co., El Paso, Tex.
 Lane Mill Service, Arthur E., New York, N. Y.
 Lyman-Hawkins Lumber Co., The, Akron, Ohio.
 Macaulay Corporation, C. R., Brooklyn, N. Y.
 Madison Lumber & Mill Co., Lewiston, Idaho.
 Maris Plywood Co., San Francisco, Calif.
 Marsh & Truman Lumber Co., Chicago, Ill.
 Mason & Son (Inc.), A., Peru, N. Y.
 Matheny Sash & Door Co., Oakland, Calif.
 Matot, D. A., Chicago, Ill.
 Mauk Lumber Co., The C. A., Toledo, Ohio.
 McCleary Timber Co., Henry, McCleary, Wash.
 McCrillis Co., Rolland F., Norwalk, Ohio.
 Melrose Lumber & Supply Co., Oakland, Calif.
 Melville Lumber Co., J. H., Broken Bow, Nebr.
 Merced Lumber Co., Merced, Calif.
 Merrill-Schaaf Lumber Co., Pierre, S. Dak.
 Miles Lumber & Coal Co., A. W., Livingston, Mont.
 Miller Manufacturing Co., St. Louis, Mo.
 Minter Homes Corporation, Huntington, W. Va.

M. and M. Plywood Corporation, Longview, Wash.
 Moline Furniture Works, Moline, Ill.
 Moore Dry Dock Co., The, Oakland, Calif.
 Moore & Williams, Jacksonville, Fla.
 Morrison-Merrill & Co., Salt Lake City, Utah.
 Mowry & Co. (Inc.), George, Derry, Pa.
 Nash Motors Co., The, Kenosha, Wis.
 National Plywood Co. (Inc.), New York, N. Y.
 Neal Blun Co., Savannah, Ga.
 Nellis, Amos & Swift, Utica, N. Y.
 New York Wood Working Corporation, New York, N. Y.
 Nicolai Door Sales Co., San Francisco, Calif.
 North Hudson Manufacturing Co., North Bergen, N. J.
 Oklahoma Sash & Door Co., Oklahoma City, Okla.
 Olympia Veneer Co., Olympia, Wash.
 Omaha Hardwood Lumber Co., Omaha, Nebr.
 Oregon-Washington Plywood Co., Tacoma, Wash.
 Pacific Mutual Door Co., Tacoma, Wash.
 Patten-Blinn Lumber Co., Los Angeles, Calif.
 Paxton Lumber Co., Frank, Kansas City, Kans.
 Perry Veneer Co., Bandon, Oreg. (in principle).
 Peterman Manufacturing Co., Tacoma, Wash.
 Piper & Sons Co., L. A., Paris, Ill.
 Plylock Corporation, The, Portland, Oreg.
 Producers Lumber Co., Tulsa, Okla.
 Queen City Wood Works & Lumber Co., Springfield, Mo.
 Renuart Lumber Yards (Inc.), Coral Gables, Fla.
 Richardson Phelps Lumber Co., Grinnell, Iowa.
 Robinson Manufacturing Co., Everett, Wash.
 Rockwell Bros. & Co., Houston, Tex.
 Roddis Lumber & Veneer Co., Kansas City, Mo.
 Rounds & Porter Co., Wichita, Kans.
 Royal Oak Wholesale Co., Royal Oak, Mich.
 Saginaw Lumber Co., The, Saginaw, Mich.
 Schiefer & Sons, San Diego, Calif.
 Schmitt & Co., Frank, Portland, Oreg.
 Scruggs-Guhleman Lumber Co., Jefferson, City, Mo.
 Segelke & Kohlhaus Co., Lacrosse, Wis.
 Shepherd Lumber Co., John C., Charlotte, N. C.
 Sherrill-Russell Lumber Co. (Inc.), Paducah, Ky.
 Sinclair Lumber & Fuel Co., Grand Rapids, Mich.

Smith Co., The Allen A., Toledo, Ohio.
 Smith & Sons, J. E., Philadelphia, Pa.
 Solie Lumber Co., Janesville, Wis.
 Sones Lumber Co., El Centro, Calif.
 Southern Sash & Door Co., Greenville, S. C.
 Sowers-Benbow Lumber Co., The, Columbus, Ohio.
 Spokane Woodworking Co., Spokane, Wash.
 Standard Cabinet Works (Inc.), Los Angeles, Calif.
 Stanton & Son, E. J., Los Angeles, Calif.
 Sterling Lumber & Investment Co., The, Denver, Colo.
 Stevenson Co., The J. E., Trenton, N. J.
 Stockton Lumber Co., Stockton, Calif.
 Strable Hardwood Co., Oakland, Calif.
 Swan Lake Moulding Co., Klamath Falls, Oreg.
 Taylor Co., Thomas H., Pittsburgh, Pa.
 Teachout Co., The, Cleveland, Ohio.
 Teachout Co., The, Detroit, Mich.
 Tolles & Co. J. H., Nashua, N. H.
 Toombs-Fay Co., Springfield, Mo.
 Trojan Cupboard Co., Burbank, Calif.
 Tulane Hardwood Lumber Co. (Inc.), New Orleans, La.
 Updike-Kennedy Co. (Inc.), Trenton, N. J.
 Vancouver Plywood Co., Vancouver, Wash.
 Van Winkle-Bromley Lumber Co., The, Paterson, N. J.
 Vickers Lumber Co., T. W., Sheridan, Wyo.
 Von Tobel Lumber Co., Ed., Las Vegas, Nev.
 Voorhees, Gmelin & Walker, New York, N. Y.
 Wade-Talcott Lumber Co., Tulsa, Okla.
 Wanke Panel Co., Portland, Oreg.
 Washburn, Williams & Co., Scranton, Pa.
 Washington Veneer Co., Olympia, Wash.
 Wearn Lumber Co., J. H., Charlotte, N. C.
 Weber Showcase & Fixture Co. (Inc.), Los Angeles, Calif.
 Wenthe Bros. Co., Effingham, Ill.
 Western Door & Sash Co., Oakland, Calif.
 West Side Lumber Co., Atlantic City, N. J.
 Wheeler, Osgood Co., The, Tacoma, Wash. (in principle).
 Whitmer-Jackson Co., The, Cleveland, Ohio.
 Wholesale Hardwood Flooring Co., Pittsburgh, Pa.
 Wilgus, H. B., Philadelphia, Pa.
 Williams & Hunting Co., Cedar Rapids, Iowa.
 Wilmington Sash & Door Co., Wilmington, Del.

Wimberly & Thomas Hardware Co.,
Birmingham, Ala.
Windber Lumber Co., Windber, Pa.
Wholsen Co., The, Lancaster, Pa.
Woodbridge Lumber Co., Woodbridge,
N. J.
Wood Glass Co., Syracuse, N. Y.
Wood Lumber Co., E. K., Los Angeles,
Calif.
Wood Products, Chicago, Ill.

Zenith Radio Corporation, Chicago,
Ill.

GOVERNMENT

District of Columbia, Government of
the, Washington, D. C.
U. S. Department of Interior, Wash-
ington, D. C.
U. S. Treasury Department, Washing-
ton, 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.	22-30.	Builders' hardware (nontemplate).
1-32.	Clinical thermometers (second edition).	23-30.	Feldspar.
2-30.	Mopsticks.	24-30.	Standard screw threads.
3-28.	Stoddard solvent.	25-30.	Special screw threads.
4-29.	Staple porcelain (all-clay) plumbing fixtures.	26-30.	Aromatic red cedar closet lining.
5-29.	Steel pipe nipples.	27-30.	Plate glass mirrors.
6-31.	Wrought-iron pipe nipples (second edition).	28-32.	Cotton fabric tents, tarpaulins, and covers.
7-29.	Standard weight malleable-iron or steel screwed unions.	29-31.	Staple seats for water-closet bowls.
8-30.	Plain and thread plug and ring gage blanks.	30-31.	Colors for sanitary ware.
9-32.	Builders' template hardware (second edition).	31-31.	Red cedar shingles.
10-29.	Brass pipe nipples.	32-31.	Cotton cloth for rubber and pyroxylin coating.
11-29.	Regain of mercerized cotton yarns.	33-32.	Knit underwear (exclusive of rayon).
12-29.	Domestic and industrial fuel oils.	34-31.	Bag, case, and strap leather.
13-30.	Dress patterns.	35-31.	Plywood.
14-31.	Boys' blouses, button-on waists, shirts, and junior shirts.	36-31.	Fourdrinier wire cloth.
15-29.	Men's pajamas.	37-31.	Steel bone plates and screws.
16-29.	Wall paper.	38-32.	Hospital rubber sheeting.
17-32.	Diamond core drill fittings (second edition).	39-32.	Wool and part wool blankets.
18-29.	Hickory golf shafts.	40-32.	Surgeons' rubber gloves.
19-32.	Foundry patterns of wood (second edition).	41-32.	Surgeons' latex gloves.
20-30.	Staple vitreous china plumbing fixtures.	42-32.	Fiber insulating board.
21-30.	Interchangeable ground glass joints.	43-32.	Grading of sulphonated oils.
		44-32.	Apple wraps.
		45-33.	Douglas fir plywood.

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, Bureau of Standards, Washington, D. C.

