U. S. DEPARTMENT OF COMMERCE
DANIEL C. ROPER, Secretary
NATIONAL BUREAU OF STANDARDS
LYMAN J. BRIGGS, Director

# WOOD SHINGLES

## (RED CEDAR, TIDEWATER RED CYPRESS CALIFORNIA REDWOOD)

## (FOURTH EDITION)

## COMMERCIAL STANDARD CS31–38

[Supersedes CS31–35]

Effective Date, October 1, 1938


## A RECORDED STANDARD OF THE INDUSTRY

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U. S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS

# PROMULGATION

of

## COMMERCIAL STANDARD CS31–38

for

# WOOD SHINGLES

(Red Cedar, Tidewater Red Cypress, California Redwood)

(Fourth Edition)

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On March 27, 1931, a general conference of representative manufacturers, distributors, and users of red-cedar shingles adopted a commercial standard for this commodity. At the request of the groups at interest, the standard was later revised to include California redwood and tidewater red-cypress shingles, and issued as the Commercial Standard for Wood Shingles, CS31–33. This standard was reaffirmed in 1935.

A revision conference was held in Seattle, Wash., on March 31, 1938, and the recommendations of the conference were circulated to the industry for written acceptance. The industry has since accepted and approved for promulgation by the U. S. Department of Commerce, through the National Bureau of Standards, the revised standard as shown herein, which is effective from October 1, 1938.

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.*

# WOOD SHINGLES

(Red Cedar, Tidewater Red Cypress, California Redwood)

(Fourth Edition)

## COMMERCIAL STANDARD CS31–38

### PURPOSE

1. This quality standard for wood shingles[1] is a basis for common understanding between manufacturers, distributors, and users of this product. By its general acceptance, use, and certification by labels, it is hoped that interest may be increased in the manufacture, sale, and use of high-grade wood shingles, which should redound to the mutual advantage of all concerned.

2. The protection and service afforded by wood shingles is in direct proportion to the quality of shingles used and, therefore, the following commercial standard of quality is provided for guidance in the manufacture, sale, and use of this product.

### SCOPE

3. This quality standard provides a minimum specification for the highest commercial grade of sawn wood shingles of the above species known as "No. 1 grade" in American Lumber Standards and as published in the 1933 supplement to Simplified Practice Recommendation R16–29. It covers length, width, thickness, grain, characteristics, color, packing, and the grading tolerances for these requirements.

### GENERAL REQUIREMENTS

4. All commercial-standard wood shingles shall be of 100-percent heartwood, well manufactured, and neatly packed; they must comply with or exceed the specifications herein established for quality.

#### GRAIN

5. All commercial-standard shingles shall be strictly vertical, or edge-grained; that is, the thin lines constituting the annual, or growth rings, shall be vertical when the shingle is laid flat, as in use. Edge grain is synonymous with quartered or quarter-sawed lumber or flooring, and the condition is considered fulfilled when no portion of the grain slope exceeds 45° from the perpendicular.

[1] Shingles covered by this standard are from the following species, which are among the highest class of decay-resistant woods, the high durability, close grain, and even texture of which make them especially suitable for roofing shingles: Western red cedar (*Thuja plicata*), whose chief commercial range is in Oregon, Washington, and British Columbia; Tidewater red cypress (*Taxodium distichum*), found chiefly in the tidewater regions of Florida and Louisiana; California redwood (*Sequoia sempervirens*), found in the coastal region of northern California and the southwestern extremity of Oregon.

### CHARACTERISTICS

6. Knots, wormholes, decay, shakes, checks, crimps, flat grain, cross grain, and sapwood constitute natural characteristics that are not admissible. Defects in manufacturing, including shims, feather tips, diagonal grain, waves, and torn fiber are likewise not admissible.

### COLOR

7. Variations in the color of heartwood of these species are caused by differences in the density of natural color filtrations. No evidence has yet been found that color of the heartwood of any species has any influence upon the strength or decay resistance. Consequently, color differences are not considered defects.

## DETAIL REQUIREMENTS

### LENGTH

8. Minimum length shall be 16 inches. The usual lengths, in addition to 16-inch shingles, are 18 and 24 inches.

9. A minus tolerance of 1 inch will be allowed in not more than 10 percent of any shipment. Shingles cut from equalized blocks or rebutted may be ¼ inch less than the standard length.

### WIDTH

10. Maximum width shall be 14 inches. Minimum width for shingles, 16 inches up to but not including 24 inches long, shall be 3 inches. Minimum width for shingles 24 inches and longer shall be 4 inches. In 16- and 18-inch shingles those less than 4 inches in width shall not constitute more than 10 percent of any shipment.

11. Shingles shall be uniform in width; that is, with parallel sides. A tolerance of ¼-inch variation in the width shall be allowed.

### THICKNESS

12. Shingles are measured for thickness at the butt ends and designated according to the number of pieces necessary to constitute a specific unit of thickness. For example, 4/2 indicates that four shingles measure 2 inches, while 5/2¼ means that each five shingles measure 2¼ inches in thickness.

13. Shingles shall be uniform in thickness, but a minus tolerance of 3 percent is allowable to compensate for the difference in shrinkage encountered in kiln drying. This tolerance is based on the total thickness of the bundle.

### PACKING

14. All random-width shingles shall be packed flat in straight courses. The unit shall be the "square" pack [2] and shall contain not less than the minimum quantity specified in table 1.

[2] See description under glossary of terms.

TABLE 1.—*Running inches per bundle and unit for standard packing*

| Length (in inches) | Thickness (in inches) | Number of courses per bundle | Number of running inches per bundle | | Application basis | Recommended exposure to weather (inches) | Number of bundles per unit | Number of running inches per unit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Green | Dry | | | | Green | Dry |
| 16 | 5 butts, 2 | 20/20 | 740 | 720 | Roof square | 5 | 4 | 2,960 | 2,880 |
| 16 | do | do | 740 | 720 | Side-wall square, single course. | 6¾ | 3 | 2,220 | 2,160 |
| 18 | 5 butts, 2¼ | 18/18 | 666 | 655 | Roof square | 5½ | 4 | 2,664 | 2,620 |
| 18 | do | do | 666 | 655 | Side-wall square, single course. | 7½ | 3 | 1,998 | 1,965 |
| 24 | 4 butts, 2 | 13/14 | 499 | 480 | Roof square | 7½ | 4 | 1,996 | 1,920 |
| 24 | do | do | 499 | 480 | Side-wall square, single course. | 10 | 3 | 1,497 | 1,440 |

15. In the packing of shingles the number of courses in each end are indicated, so that the designation 13/14 means a bundle with 13 courses at one end and 14 courses at the other end, or a total of 27 courses.

### DIMENSION SHINGLES

16. Those shingles cut to specified widths and known as "dimension shingles" shall be designated only according to the number of pieces per bundle.

### RUNNING INCHES

17. The chief concern of the shingle buyer is the amount of coverage provided in a bundle of shingles with a prescribed exposure to the weather. This depends on the total width of the shingles, when laid side by side, and shall be referred to as "running inches," as shown respectively for "Green" and "Dry" in table 1. Modern methods of manufacture and packing random-width shingles have established 18½ inches, when green, as the average measure of running inches in each course of shingles in the bundle, and the total running inches may be ascertained by multiplying this figure by the number of courses.

### GRADING TOLERANCE

18. The economical production of wood shingles requires the use of high-speed machinery and other facilities to reduce the expense incident to sorting and packing. As a consequence, it is possible that some few shingles with unnoticed defects will occasionally be put into the bundles.

19. If reinspection is necessary because of the too frequent appearance of defects, the shipment may be refused if the total running inches of defective shingles constitutes 4 percent or more of the shipment.

### INSPECTION

20. The inspection of wood shingles, both in car lots at destination or at customary inspection points, shall ordinarily be made on the basis of the usual unit of inspection, which is eight bundles per carload or fraction thereof. Because of the wide variation in shingle widths, all percentages shall be calculated on the basis of running inches.

## GLOSSARY OF TERMS

*Checks.*—A check is a lengthwise separation of the wood, which occurs usually across the rings of annual growth.

*Crimps.*—A crimp is a breaking-down or collapse of wood fibers, usually due to an inherent condition in some timber or a result of too rapid drying.

*Cross grain.*—A condition that should not be confused with the terms "flat" or "edge" grain, and that might better be termed "cross fiber", since it is a deviation of the wood fibers from the true parallel of the shingle. It is a serious defect when it runs from one face of the shingle to the other within a longitudinal distance of 4 inches or less in any portion measured 12 inches from the butt.

*Decay.*—A disintegration of the wood substance caused by the action of wood-destroying fungi. Dote and rot are synonymous with decay.

*Diagonal grain.*—A condition where the grain of the wood does not run parallel to the edges of the shingle. It is considered a defect when the grain diverges or slants 2 inches or more in width in 12 inches of length.

*Dote.*—*See* Decay.

*Edge grain.*—*See* Vertical grain.

*Feather tips.*—A feather tip or shim is a condition of manufacture found on the thin ends of some shingles where the saw came out of the piece prematurely, producing a thin, flimsy, featherlike edge. The tip ends of the shingle may be uniformly thin and produce a thoroughly satisfactory roof, but when they are uneven or with corners sawn off, the shingles will not lay-up evenly.

*Flat grain.*—A condition in shingles or lumber where the growth rings are flat, or horizontal, as opposed to edge-grained, or quartered, material where the growth rings are on edge, or vertical to the surface.

*Knots.*—A knot is the remains of a branch or limb embedded in the wood substance of a tree, which has been exposed in the process of manufacture.

*Rot.*—*See* Decay.

*Sapwood.*—The portion of the wood of a tree immediately next to the bark, usually characterized by a lighter color than the heartwood, or interior wood of the tree. While there is usually no difference in the physical strength of the two kinds of wood, sapwood is quite susceptible to decay.

*Shakes.*—A shake is a lengthwise separation of the wood, which occurs usually between and parallel to the growth rings.

*Shims.*—*See* Feather tips.

*Square pack.*—A unit providing sufficient shingles for the coverage of an area of 100 square feet when the shingles are laid at any specified exposure to the weather. See page 5.

*Torn fiber.*—This condition may also be referred to as "torn grain"—a fuzzy or whiskered appearance usually caused by a dull saw.

*Vertical, or edge grain.*—A quality condition of manufacture in which the rings of annual growth are vertical to the exposed surface or nearly so, or to such an extent that no portion of the slope of ring growth exceeds 45° from the vertical.

*Waves.*—Irregularities on the face of a shingle also referred to as "washboards", usually caused by a wobbling of the saw on its arbor.

*Wormholes.*—Wormholes are voids in the wood caused by the burrowing action of certain wood-infesting worms.

## MANUFACTURERS' RECOMMENDATIONS

The following information is not part of the commercial standard for wood shingles, but represents the manufacturers' recommendations, based on long experience for maximum service in the use of wood shingles:

TABLE 2.—*Approximate covering capacities, in square feet, of the various sized shingles*

(Random width, square pack)

| Size of shingles | | Number of bundles per square | Number of inches exposed to the weather | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 4 | 4½ | 5 | 5½ | 6 | 6½ | 7 | 7½ | 8 | 8½ | 9 | 9½ | 10 | 10½ | 11 | 11½ |
| 1 square of 16 in. 5/2 will cover on | Roofs | 4 | 80 | 90 | [a]100 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Side walls | 3 | --- | --- | --- | 90 | 95 | 100 | 105 | [a]110 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 square of 18 in. 5/2¼ will cover on | Roofs | 4 | 70 | 80 | 90 | [a]100 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Side walls | 3 | --- | --- | --- | --- | 85 | 90 | 95 | 100 | 110 | [a]115 | --- | --- | --- | --- | --- | --- | --- |
| 1 square of 24 in. 4/2 will cover on | Roofs | 4 | --- | --- | --- | --- | 80 | 90 | 95 | [a]100 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Side walls | 3 | --- | --- | --- | --- | --- | --- | --- | --- | 80 | 85 | 90 | 95 | 100 | 105 | 110 | 115 | --- |

[a] Greater exposure not recommended.

*Proper weather exposure.*—In roofing, long experience has indicated the wisdom of exposing not more than one-third of the shingle to the weather in order to assure adequate protection from the elements. Dry shingles should be spaced ¼ to ⅜ inch between the edges of adjacent shingles.

Recommended shingle exposures are shown in tables 3 and 4.

TABLE 3.—*Roof shingle exposures for various pitches*

| Pitch of roof | | | Maximum exposure of shingles on roofs (in inches) | | |
|---|---|---|---|---|---|
| Pitch | Rise (in inches) | Run | 16 | 18 | 24 |
| ⅛ | 3 | 12 | 3¾ | 4¼ | 5¾ |
| ⅙ | 4 | 12 | 3¾ | 4¼ | 5¾ |
| ¼ | 6 | 12 | 3¾ | 4¼ | 5¾ |
| ⅓ | 8 | 12 | 5 | 5½ | 7½ |
| ½ | 12 | 12 | 5 | 5½ | 7½ |
| ⅝ | 15 | 12 | 5 | 5½ | 7½ |
| ¾ | 18 | 12 | 5 | 5½ | 7½ |

TABLE 4.—*Side-wall shingle exposures for single and double coursing*

| Length of shingles (in inches) | Recommended exposure of shingles on side walls (in inches) | |
|---|---|---|
| | Single course | Double course [1] |
| 16 | 6 to 7½ | 8 to 12 |
| 18 | 6 to 8½ | 8 to 14 |
| 24 | 8 to 11 | 12 to 16 |

[1] Assuming exposed course is face-nailed.

Formula for covering capacities per "square":

$$\frac{\left.\begin{matrix}\text{Total number}\\ \text{of courses in}\\ \text{both ends of}\\ \text{bundle}\end{matrix}\right\} \times 18\tfrac{1}{2}^{a} \times \left\{\begin{matrix}\text{number of}\\ \text{bundles in}\\ \text{square}\end{matrix}\right\} \times \left\{\begin{matrix}\text{number of}\\ \text{inches ex-}\\ \text{posed to}\\ \text{weather}\end{matrix}\right\}}{144} = \text{Number square feet 1 square will cover.}$$

[a] Running inches in each course.

*The proper nail.*—The heartwood of western red cedar, tidewater red cypress, and California redwood is naturally highly resistant to decay, and when employed as shingles for roofs or side walls, it is desirable to use nails which will last as long as the shingles. Just as the chain is no stronger than its weakest link, so is a shingled roof no more enduring than its nails. When ordinary wire nails are used, moisture soon reaches the nail and the process of rusting begins. A small pocket is formed which harbors moisture and facilitates the rusting process. In time the nails become rusted through and the shingles are torn loose under the attack of wind and weather. If the proper nails are used, however, the shingles will be held securely and give service and protection throughout their natural life.

Numerous experiments have conclusively proved the wisdom and economy of high-grade nails, and maximum service may be assured by using either cut or wire type, hot-dipped zinc-coated nails.

## EFFECTIVE DATE

The revised standard became effective October 1, 1938.

## STANDING COMMITTEE

The following comprises 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.

*Manufacturers:*

GEORGE A. BERGSTROM (chairman), C. B. Lumber & Shingle Co., Tenth and Norton Sts., Everett, Wash.

CHAS. H. INGRAM, Weyerhaeuser Timber Co., Tacoma, Wash.

A. J. MORLEY, Saginaw Timber Co., Finch Bldg., Aberdeen, Wash.

C. W. BAHR, California Redwood Assn., 405 Montgomery St., San Francisco, Calif.

J. F. WIGGINTON, Southern Cypress Mfrs. Assn., 722 Barnett Bank Bldg., Jacksonville, Fla.

*Distributors:*

H. P. KENDALL, Creo-Dipt Co., Inc., North Tonawanda, N. Y.

A. E. LANE, Arthur E. Lane Mill Service, 1722 Grand Central Terminal, New York, N. Y.

FINDLAY M. TORRENCE, Ohio Association of Retail Lumber Dealers, Green and Market Sts., Xenia, Ohio.

FRANK CARNAHAN, National Retail Lumber Dealers Assn., Union Trust Bldg., Washington, D. C.

CARL BLACKSTOCK, Blackstock Lumber Co., 545 Elliott Ave., W., Seattle, Wash. Representing Western Retail Lumbermen's Association.

R. M. CROSS, Twin City Lumber & Shingle Co., 2563 Franklin Ave., St. Paul, Minn.

*Users:*
THEODORE I. COE, The American Institute of Architects, 4000 Cathedral Ave., Washington, D. C.
JOSHUA H. VOGEL, Baker and Vogel, 321 Smith Tower, Seattle, Wash. Representing American Institute of Architects.

## LABELING

Figure 1 illustrates how an important group of producers have arranged to certify complete compliance with the commercial standard. Shingles produced by members of this group to conform to the standard may be readily identified by copies of the label appearing on each bundle. It is understood that two other groups will use substantially the same label.

Label Series D 574

**NAILS** Use only two hot-dipped zinc-coated nails in the laying of each shingle. Only such nails will endure as long as Certigrade Red Cedar Shingles. Owners should DEMAND and INSIST on the use of these rust-proof nails.

• • • • • •

Ask the retail lumberman for literature on over-roofing or remodeling with Red Cedar Shingles, or write direct to RED CEDAR SHINGLE BUREAU, White Building, Seattle, Washington.

**CERTIGRADE**
TRADE MARK
*Red Cedar*
**SHINGLES**
**NO. 1 GRADE**
**100% Edge-grain 100% All Clear 100% Heartwood**
THESE SHINGLES ARE GUARANTEED TO MEET ALL THE QUALITY REQUIREMENTS OF COMMERCIAL STANDARD C. S. 31-38 FOR RED CEDAR SHINGLES AS ISSUED BY U. S. DEPARTMENT OF COMMERCE, WASHINGTON, D. C.
*Inspected by*
PRINTED IN U. S. A.
**RED CEDAR SHINGLE BUREAU**
COPYRIGHT 1935

FIGURE 1.—*Facsimile of label for each bundle of grade 1 shingles.*

## HISTORY OF PROJECT

*General conference.*—Pursuant to a request of the Red Cedar Shingle Bureau a general conference of manufacturers, distributors, and consumers of red-cedar shingles met in Seattle, Wash., on March 27, 1931, and approved a commercial standard for their product that was later accepted by the trade.

A survey of adherence to the standard, covering the first 9 months of 1932, indicated its use by an unweighted average of 97.5 percent of those reporting and numerous comments were received as to its stabilizing effect.

*First revision* (second edition).—Early in 1933, applications were received from the California Redwood Association and the Southern Cypress Manufacturers' Association for admittance of California redwood and tidewater red cypress under the scope of this standard, thus providing for the inclusion of the three principal shingle species under a common standard to the mutual advantage of all concerned, which the standing committee accordingly approved.

When reprinting became necessary in 1935, the standing committee voted to reaffirm the standard without change (third edition).

*Second revision* (fourth edition).—In early 1938 a request was received from the Red Cedar Shingle Bureau for a revision of the standard to include No. 2 and No. 3 grade shingles. A revision conference was held in Seattle, Wash., on March 31, 1938, but the conference voted against such a revision of the standard, due chiefly to the lack of uniformity in the grade specifications of the three species. A number of minor changes were approved, which do not change the grade requirements in any way, but clarify their interpretation and add several suggestions under the manufacturers' recommendations. The recommended revision was circulated to the industry for acceptance on May 9, 1938, and the establishment of the revision was announced on September 2, 1938, becoming effective from October 1, 1938.

CS31–38

## 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 CS31–38 as our standard of practice in the

Production [1] Distribution [1] Use [1]

of wood shingles.

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 of individual officer_____
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer_____

Company_____
(Fill in exactly as it should be listed in pamphlet)

Street address_____

City and State_____

(Cut on this line)

[1] Please designate which group you represent by drawing lines through the other two. Please file separate acceptances for all subsidiary companies and affiliates which should be listed separately as acceptors. 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 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

The organizations and individuals listed below have accepted these grading rules as their standard of practice in the production, distribution, and use of wood shingles. Such endorsement does not signify that they may not find it necessary to deviate from the standard, nor that producers so listed guarantee all of their products to conform with the requirements of this standard. Therefore, specific evidence of quality certification should be obtained where required.

## ASSOCIATIONS

Akron Associated Lumbermen, Akron, Ohio.
American Institute of Architects, Washington, D. C. (In principle.)
American Specification Institute, Chicago, Ill.
Associated General Contractors of America, Inc., The, Washington, D. C.
Board of Fire Underwriters of the Pacific, San Francisco, Calif. (In principle.)
California Redwood Association, San Francisco, Calif.
Central Committee on Lumber Standards, Washington, D. C. (In principle.)
Consolidated Red Cedar Shingle Association of British Columbia, Vancouver, B. C., Canada. (In principle.)
Douglas Fir Plywood Association, Tacoma, Wash.
Indiana Farm Bureau Cooperative Association, Inc., Indianapolis, Ind.
Insulation Board Institute, Chicago, Ill. (In principle.)
Intercoastal Lumber Distributors Association, New York, N. Y.
National-American Wholesale Lumber Association, Inc., New York, N. Y.
National Association Builders Exchanges, Washington, D. C.
National Lumber Exporters Association, Memphis, Tenn.
National Lumber Manufacturers Association, Washington, D. C. (In principle.)
New York Lumber Trade Association, Inc., New York, N. Y.
Pacific Coast Building Officials Conference, Los Angeles, Calif. (In principle.)
Pacific Coast Shingle Inspection Bureau, Inc., Seattle, Wash. and New Westminster, B. C., Canada.
Queensbridge Project Associated Architects, New York, N. Y.
Red Cedar Shingle Bureau, Seattle and Vancouver, Wash.
Red Cedar Shingle Bureau, British Columbia Division, Vancouver, B. C., Canada. (In principle.)
Seattle Construction Council, Seattle, Wash.
Southern Cypress Manufacturers Association, Jacksonville, Fla.
Tennessee Lumber, Millwork & Supply Dealers Association, Johnson City, Tenn.
United Roofing Contractors Association of North America, Chicago, Ill.
West Coast Lumbermen's Association, Seattle, Wash.

## FIRMS

Acme Steel Co., Chicago, Ill. (In principle.)
Adanac Shingles, Ltd., Vancouver, B. C., Canada.
Addison-Rudesal Co., Atlanta, Ga.
Adkins & Co., E. S., Salisbury, Md.
Ahner, G. W., Yuba City, Calif.
Allen Lumber Co., Peoria, Ill.
Allen-Stoltze Lumber Co., Ltd., Vancouver, B. C., Canada.
Aloha Lumber Co., Aloha, Wash.
Altfillisch, Charles, Decorah, Iowa.
Althauser Shingle Co., Mayfield, Wash.
American Lumberman, Seattle, Wash. (In principle.)
Antrim Lumber Co., St. Louis, Mo.
Armstrong, Kyle W., Columbus, Ohio. (In principle.)
Armstrong-Thielman Lumber Co., Calumet, Mich.
Arrington & Co., Inc., W. C., Norfolk, Va.
Art Stained Shingle Co., Inc., Buffalo, N. Y.

Augusta Lumber Co., Augusta, Ga.
Auler, Jensen & Brown, Oshkosh, Wis.
Austin, C. O., Gig Garbor, Wash.
Austin & Shambleau, South Bend, Ind.
Baer & Son, B. C., Reading, Pa.
Bagnal Nettles Builders Supply Co., Columbia, S. C. (In principle.)
Barker Lumber & Fuel Co., Green Bay, Wis.
Barnes Lumber Co., W. F. & J. F., Waco, Tex.
Barney, W. Pope, & Banwell, Roy W., Associates, Philadelphia, Pa.
Barr Lumber Co., Santa Ana, Calif.
Barthmaier, Eugene V., Philadelphia, Pa.
Bastow, Abram, New York, N. Y.
Baumer, Herbert, Columbus, Ohio.
Bayne Lumber Co., L. M., Ottawa, Ill.
Beaver Falls Planing Mill Co., Beaver Falls, Pa.
Bennett Homes and Lumber Co., Inc., N. Tonawanda, N. Y.
Bennett Shingle Mill, H. T., Warren, Oreg.
Berkeley, City of, Berkeley, Calif. (In principle.)
Bernard Bros. Shingle Co., Darrington, Wash.
Bial, George F., Hasbrouck Heights, N. J.
Big Lake Shingle Co., Mt. Vernon, Wash.
Big River Shingle Co., Clallam Bay, Wash.
Billings, Jr., A. W. K., Boston, Mass.
Bishop, Horatio W., Los Angeles, Calif.
Blachly Shingle Co., Dexter, Oreg.
Blackall, Clapp, Whittemore & Clark, Boston, Mass.
Blithe, Wesley Lesher, Philadelphia, Pa.
Bloedel Donovan Lumber Mills, Bellingham, Wash.
Bloedel, Stewart & Welch, Ltd., Vancouver, B. C., Canada.
Booth & Boyd Lumber Co., Saginaw, Mich.
Borden, Guiney & Kendall Co., Fall River, Mass.
Botsford Lumber Co., Winona, Minn.
Bourbon Lumber Co., Paris, Ky.
Bow Shingle Co., Edison, Wash.
Boyd Lumber & Mill Co., Santa Barbara, Calif.
Brain Lumber Co., The, Springfield, Ohio.
Braseth & Houkom, Fargo, N. Dak.
Bratlie Bros. Mill Co., Ridgefield, Wash.
Brattin & Son, F. J., Shepherd, Mich.
Braun, Ray Bros. & Finley Co., Omaha, Nebr.
Brazer, Clarence W., New York, N. Y.
Brooks-Scanlon Corporation, Foley, Fla.
Brown, Percy J., Eureka, Calif.
Brown, W. J., Cedar Rapids, Iowa. (In principle.)
Brown Shingle Co., Dexter, Oreg.
Buechner & Orth, St. Paul, Minn. (In principle.)
Burrow Lumber Co., Canyon, Tex.
Bush & Miller, Ehurne P. O., B. C., Canada.
Butler-McDougall Manufacturing Co., Ltd., Vancouver, B. C., Canada.
C. B. Lumber & Shingle Co., Everett, Wash.
Cabot, Inc., Samuel, Boston, Mass.
Canadian Western Lumber Co., Ltd., Fraser Mills, B. C., Canada.
Cannon & Mullen, Salt Lake City, Utah.
Capilano Shingle Co., Ltd., Vancouver, B. C., Canada.
Capital Shingle Co., Inc., Olympia, Wash.
Carey, Lombard, Young & Co., Oklahoma City, Okla.
Carlisle Lumber Co., Onalaska, Wash.
Carolina Builders Corporation, Raleigh, N. C.
Carroll, John, Atlantic City, N. J.
Carroll Lumber Co., Inc., The, Alexandria, La.
Case Cedar & Shingle Co., Raymond, Wash.
Center Lumber Co., Pittsburgh, Pa.
Central City Lumber & Manufacturing Co., Central City, Ky.
Central Warehouse Lumber Co., Minneapolis, Minn.
Century Lumber Co., Des Moines, Iowa.
Chapin Lumber Co., The, Aurora, Colo.
Charleston Lumber Co., Charleston, W. Va.
Chew Shingle Co., Ltd., Joseph, Vancouver, B. C., Canada.
Child, Harry C., Sayre, Pa.
Citizens Lumber Co., Sturgis, Mich.
Clark County Lumber Co., The, Springfield, Ohio.
Clark & Wilson Lumber Co. of Delaware, Linnton, Portland, Oreg.
Coates-Hoppe Lumber Co., N. Platte, Nebr.
Conrad & Cummings, Binghamton, N. Y.
Coolidge, Shepley, Bulfinch & Abbott, Boston, Mass.
Coquille Shingle Mill Co., Coquille, Oreg.
Coram Shingle Mill, P. S., Columbia City, Oreg.
Corbett Mill Co., Anacortes, Wash.
Corddry Co., The, (Inc.), Snow Hill, Md.
Costello Lumber Co., James, Liberty, Mo.
Cottonwood Lumber Co., Cottonwood, Ariz.
Cram & Ferguson, Boston, Mass.
Cramton Lumber Co., Montgomery, Ala.
Creo-Dipt Co., Inc., New York, N. Y.

Crescent Shingle Co., Kelso, Wash.
Crowder Shingle Co., Birkenfeld, Oreg.
Crowell & Lancaster, Bangor, Maine.
Cummer Sons Cypress Co., Jacksonville, Fla.
Curran Bros., Pomona, Calif.
Dascomb-Daniels Lumber Co., Kansas City, Mo.
De Jarnette, Charles W., Des Moines, Iowa.
Deming Lumber Co., Deming, Wash.
Derr-Gibbons Supply Co., Philadelphia, Pa.
Diamond Match Co., The, Chico, Calif.
Dickerson Lumber Co., Huntington, W. Va.
Dierks Lumber & Coal Co., Kansas City, Mo.
District of Columbia, Government of the, Washington, D. C. (In principle.)
Dodds Lumber Co., Omaha, Nebr.
Dodge & Morrison, New York, N. Y.
Dolbeer & Carson Lumber Co., San Francisco, Calif.
Donovan, John J. Berkeley, Calif. (In principle.)
DuPlain Lumber Co., Joseph A., Rockford, Ill.
Dykes Lumber Co., New York, N. Y.
Easterly Lumber Co., Chas., Carbondale, Ill.
Eastern Railway & Lumber Co., Centralia, Wash.
Eatonville Lumber Co., Eatonville, Wash.
Eclipse Lumber Co., Clinton, Iowa.
Economy Lumber Co., Inc., Christiansburg, Va.
Edgewater Shingle Co., Marysville, Wash.
Eldridge, Charles Wm., Oswego, N. Y.
Embree & Sons, E. E., DeKalb, Ill.
Emery Industries, Inc., Cincinnati, Ohio.
Erickson Shingle Co., Marysville, Wash.
Evans & Callaway, Fowler, Ind.
Evers, Albert J., San Francisco, Calif.
Ewing Lumber Co., Effingham, Ill.
Farr, Albert, & Ward, J. Francis, San Francisco, Calif.
Flannagan, Eric G., Henderson, N. C.
Fleming, W. M., Taft, Oreg.
Flint Lumber Co., Flint, Mich.
Florida Louisiana Red Cypress Co., Jacksonville, Fla.
Foltz & Son, Herbert, Indianapolis, Ind.
Forks Shingle Co., Forks, Wash.
Foster Lumber Co., R. S., Indianapolis, Ind.
Foxworth Gailbraith Lumber Co., Phoenix, Ariz.
Foxworth McCalla Lumber Co., Phoenix, Ariz.
Frey Planing Mill Co., The, Louisville, Ky.
Fujita & Co., Raymond, Wash.
Fuller Shingle Co., A. B., Kalama, Wash.
Fuller Goodman Co., Oshkosh, Wis.
Fuller Shingle Co., Shelton, Wash.
Furer, William C., Honolulu, Hawaii.
Gilchrist, Edmund B., Philadelphia, Pa.
Gillum Shingle Co., Seattle, Wash.
Gledhill & Kime Lumber Co., Crestline, Ohio.
Gorrie Lumber Co., Montgomery, Ala.
Granger & Bollenbacher, Chicago, Ill.
Gray Shingle Co., Inc., Robert, Hoquiam, Wash.
Green Shingle Co., Aberdeen, Wash.
Griffin Manufacturing Co., A. T., Goldsboro, N. C.
Gunter Lumber Co., Kansas City, Mo.
Hager & Cove Lumber Co., Lansing, Mich.
Hahn, Stanley Worth, Muskegon, Mich.
Hallack & Howard Lumber Co., The, Denver, Colo.
Hammerquist Shingle Co., Monroe, Wash.
Hammond Cedar Co., Ltd., Hammond, B. C., Canada.
Hammond Lumber Co., Los Angeles, Calif., and San Francisco, Calif.
Hammond Redwood Co., San Francisco, Calif.
Hanan, Chas., Macomb, Ill.
Harris Lumber Co., Loveland, Colo.
Harrison Co., The W. H., Grand Island, Nebr.
Hartmann-Neubert Lumber Co., Seattle, Wash.
Hatten Lumber Co., New London, Wis. (In principle.)
Hatzic Shake and Shingle Co., Ltd., Hatzic, B. C., Canada.
Hawkeye Lumber Co., Oskaloosa, Iowa.
Heidritter Lumber Corporation, Elizabeth, N. J.
Herbst & Kuenzli, Milwaukee, Wis.
Hettler Lumber Co., Herbert H., Chicago, Ill.
Hewitt, Emerson & Gregg, Peoria, Ill.
Higgins, Charles H., New York, N. Y.
Higgins Lumber Co., Pittsburgh, Pa.
Hinckley & Son Co., John, Yarmouthport and Hyannis, Mass.
Hobbs Wall & Co., San Francisco, Calif.
Hodgdon & Son, Charles, Chicago, Ill.
Hoffman Lumber Co., Pittsburgh, Pa.
Hoit, Price & Barnes, Kansas City, Mo.
Hoke, Karl Buckingham, Toledo, Ohio.
Holcomb Bros., Sycamore, Ill.
Holmes Eureka Lumber Co., San Francisco, Calif.
Holsman & Holsman, Chicago, Ill.
Homalko Logging Co., Ltd., Vancouver, B. C., Canada.
Home Lumber & Coal Co., Dixon, Ill.
Hope, Jr., Frank L., San Diego, Calif.
Horne Bros. Shingle Co., Ltd., N. Vancouver, B. C., Canada.

Horner Lumber Co., J. W., Sioux Falls, S. Dak.
Horton Cedar Manufacturing Co., Ltd., Victoria, B. C., Canada.
Houston, Better Business Bureau of, Houston, Tex. (In principle.)
Hudson, Flynn E., Auburn, Ala.
Hudson Houston Lumber Co., The Ardmore, Okla.
Hulbert Mill Co., William, Everett, Wash.
Hunter, Jr., T. H., Beaumont, Tex.
Hunting Lumber Co., R. D., Cedar Rapids, Iowa.
Huntting Merritt Shingle Co., Ltd., Vancouver, B. C., Canada.
Idanha Shingle Co., Inc., Idanha, Oreg.
Independent Lumber Co., The, Grand Junction, Colo.
Iowa Builders Supply Co., Cedar Rapids, Iowa.
Ivey, Inc., Edwin J., Seattle, Wash.
James Lumber Co., Boston, Mass.
Jamison Lumber & Shingle Co., Everett, Wash.
Jamison Mill Co., Everett, Wash.
Johnson, Wallwork & Dukehart, Portland, Oreg.
Jones, Meredith, Seattle, Wash.
Jones & Marsh, Portland, Oreg.
Keich, Robert J., Warren, Ohio.
Kelly, V. S., Bellingham, Wash.
Kerriston Shingle Co., Taylor, Wash.
Kirkpatrick Estate, Thomas, Van couver, B. C., Canada.
Knapp, A. D., Pittsburgh, Pa.
Knighton & Howell, Portland, Oreg.
Kohn, Robert D., & Butler, Chas., New York, N. Y.
Kruckemeyer & Strong, Cincinnati, Ohio.
Lamb Creek Shingle Co., Priest River, Idaho.
Lambert Lumber Co., Leavenworth, Kans.
Lander Lumber Co., El Paso, Tex.
Lane Mill Service, Arthur E., New York, N. Y.
Larrick, Tom, Lawrence, Kans.
Lawrence, Holford & Allyn, Portland, Oreg.
Lay Lumber Co., H. J., Kewaskum, Wis.
Leachman Lumber Co., Des Moines, Iowa.
Leidigh & Havens Lumber Co., Kansas City, Mo.
Leland Shingle Co., Port Townsend, Wash.
Lewis Shingle Co., Inc., J. A., Wheeler, Oreg.
Leybold-Smith Shingle Co., Inc., Tacoma, Wash.
Liberty Lumber & Manufacturing Co., Inc., Erwin, Tenn. (In principle.)
Lincoln Timber Co., Granite Falls. Wash.
Lion Shingle Co., Aberdeen, Wash.
Little & Russell, Boston, Mass.
Lockman, Frederick V., Seattle, Wash.
Loeb, Laurence M., White Plains, N. Y.
Long Beach, Better Business Bureau of, Long Beach, Calif. (In principle.)
Long Beach, City of, Long Beach, Calif.
Long Bell Lumber Co., The, Longview, Wash., and Kansas City, Mo.
Lovell-Scholfield Lumber Co., Eldora, Iowa.
Luhring Lumber Co., Inc., Evansville, Ind.
Lumber & Millwork Co. of Philadelphia, The, Philadelphia, Pa.
Lyman Hawkins Lumber Co., The, Akron, Ohio.
Lynch & Foard, Wilmington, N. C.
Mackie Mill Co., Markham, Wash.
MacLin Shingle Co., Morton, Wash.
Maisler Bros. Lumber Co., Fresno, Calif.
Marona Mill Co., Acme, Wash.
Marshall-Wright Lumber Co., Inc., Ionia, Mich.
Martin, Raymond J., New York, N. Y.
Mason & Co., George D., Detroit, Mich.
Mason Lumber Co., Jacksonville, Fla.
Mason & Sons, Inc., A., Peru, N. Y.
Massachusetts, State of, Boston, Mass. (In principle.)
Mauk Lumber Co., The C. A., Toledo, Ohio.
Mauk Seattle Lumber Co., Seattle, Wash.
Mauran, Russell, Crowell & Mullgardt, St. Louis, Mo.
Maze Co., W. H., Peru, Ill. (In principle.)
McCarter Shingle Co., Ltd., Victoria, B. C., Canada.
McCornack, Walter R., Cleveland, Ohio.
McFarland Lumber Co. of Philadelphia, Philadelphia, Pa.
McFarland Lumber & Hardware Co., Salt Lake City, Utah.
McMaster Lumber & Shingle Co., Marysville, Wash.
McNair Shingle Co., Ltd., The Robert, Vancouver, B. C., Canada.
Mershon Forest Products Co., Inc., John D., Saginaw, Mich.
Meyers, Henry H., Alameda, Calif.
Michigan Stained Shingle Co., Inc., Grand Rapids, Mich.
Mid-West Lumber Co., The, Mankato, Kans.
Midwest Lumber Co., Dubuque, Iowa.
Miles Lumber & Coal Co., A. W., Livingston, Mont.
Miller Cedar Lumber Co., E. C., Aberdeen, Wash.
Miller & Sons, W. H., Madison, Ind.
Miller & Yeager, Terre Haute, Ind.
Milligan Co., D., Jefferson, Iowa.
Mitchell & Co., M. F., Carlotta, Calif.

Monterey Bay Redwood Co., Santa Cruz, Calif.
Moore, Alvin Roger, Atlanta, Ga.
Moore & Co., Le Mars, Iowa.
Moore Lumber Co., L. A., Mason City, Iowa.
Moore & Williams, Jacksonville, Fla.
More Lumber Co., Frank J., St. Louis, Mo.
Morison Lumber Co., Crawford, Nebr.
Morrison, Sr., Gay, Malvern, Ark.
Morrison-Merrill & Co., Salt Lake City, Utah.
Mundie, Jensen, Bourke & Havens, Chicago, Ill. (In principle.)
Nassau Suffolk Lumber & Supply Corporation, Amityville, Long Island, N. Y.
Nehalem Shingle Co., Portland, Oreg.
New Orleans, Inc., Better Business Bureau of, New Orleans, La. (In principle.)
North Star Shingle Co., Arlington, Wash.
North Western Logging Co., Hoquiam, Wash.
Northwest Cedar Products, Ltd., Vancouver, B. C., Canada.
Northwestern Lumber & Shingle Co., Bellingham, Wash.
Norton & Son, F. S., Alonga, Iowa.
O. K. Shingle Co., Marysville, Wash.
Oakland Shingle Co., Edmonds, Wash.
O'Brien Logging Co., Ltd., Vancouver, B. C., Canada.
Officer, Gwynn, Berkeley, Calif.
O'Rourke Co., John, W., Orange, N. J.
Pacific Lumber Co., The, San Francisco, Calif.
Pacific Lumber & Shingle Co., Seattle, Wash.
Pacific National Lumber Co., Tacoma, Wash.
Pacific Shingle Co., Ltd., Coquitlam, B. C., Canada.
Pacific States Lumber Co., Tacoma, Wash.
Pacific Timber Co., Everett, Wash.
Parsons Lumber Co., Inc., Rockford, Ill.
Patten-Blinn Lumber Co., Los Angeles, Calif.
Patterson Co., J. H., Rockford, Ill.
Patton Lumber Co., Ashland, Ky.
Pauze, L. G., Hoquiam, Wash. (In principle.)
Peace Portal Co-Operative Mill, Blaine, Wash.
Pearce & Stow Shingle Co., North Bend, Wash.
Peaslee, Horace W., Washington, D. C.
Pennsylvania State College, The Department of Forestry, State College, Pa. (In principle.)
Perma-Stain Co., The, Cincinnati, Ohio, and Cleveland, Ohio.
Perry Lumber Co., Holbrook, Nebr.
Peters Shingle Co., Chehalis, Wash.
Polson Logging Co., Hoquiam, Wash.
Porter, C. A., Salem, Ill.
Portland Shingle Co., Portland, Oreg.
Potter Lumber & Supply Co., The, Worthington, Ohio.
Prairie du Rocher Lumber Co., Prairie du Rocher, Ill.
Prosperity Shingle Co., Ltd., N. Vancouver, B. C., Canada.
Proudfoot-Rawson-Brooks-Borg, Des Moines, Iowa.
Purves, Core & Stewart, Philadelphia, Pa.
Putnam & Jones, Carthage, Mo., and Oklahoma City, Okla.
Quality Shingle Co., Inc., Edmonds, Wash.
Rainier Mill Co., Rainier, Oreg.
Red Cedar Roofing Co., Ltd., Vancouver, B. C., Canada.
Reid, Jr., William H., Billings, Mont.
Requarth Co., The F. A., Dayton, Ohio.
Restrick Lumber Co., Detroit, Mich.
Rideout Lumber Co., Wausau, Wis.
Rindge & Rindge, Grand Rapids, Mich.
Risser Lumber Co., Art, Paris, Ill.
Rockford Lumber & Fuel Co., Rockford, Ill.
Rogers Lumber Co., The T. H., Oklahoma City, Okla.
Rose Valley Shingle Co., Kelso, Wash. (In principle.)
Royal Shingle Co., Whites, Wash.
Runels Construction Co., R. E., Lowell, Mass.
Saddle Mt. Cedar Products Co., Astoria, Oreg.
Saginaw Lumber Co., The, Saginaw, Mich.
Saginaw Timber Co., Aberdeen, Wash.
St. Paul & Tacoma Lumber Co., Tacoma, Wash.
Santa Fe Lumber Co., San Francisco, Calif.
Schoeppe, Edward, Philadelphia, Pa.
Schroeder Lumber & Supply Co., John, Milwaukee, Wis.
Scott Lumber Co., The, Wheeling, W. Va.
Scranton Better Business Bureau, Scranton, Pa. (In principle.)
Seattle Cedar Lumber Manufacturing Co., Seattle, Wash.
Shenk Co., Henry, Erie, Pa.
Sherrill-Russell Lumber Co., Paducah, Ky.
Shevlin Pine Sales Co., Minneapolis, Minn.
Shininger Shingle Manufacturing Co., R. F., Seaside, Oreg.
Shutts & Morrison, Erie, Pa.
Siebert, John S., San Diego, Calif.
Simpson Logging Co., Reed Mill Division, Shelton, Wash.
Sitterding Carneal Davis Co., Inc., Richmond, Va.
Skagit Mill Co., Lyman, Wash.
Skalley-Setright Shingle Co., Everett, Wash.

Smith, Delos H., Washington, D. C.
Smith, Hinchman & Grylls, Detroit, Mich.
Smith Lumber & Shingle Co., M. R., Seattle, Wash.
Smith & Sons, J. E., Philadelphia, Pa.
Snider Shingle Co., Carlton, Oreg.
Snoqualmie Falls Lumber Co., Snoqualmie Falls, Wash.
Soderberg Lumber Co., Carl, Spokane, Wash.
Solie Lumber Co., Janesville, Wis.
Soule Shingle Co., Stearnsville, Aloha P. O., Wash. (In principle.)
South Park Lumber Co., St. Joseph, Mo.
Standard Lumber Co., Pine Bluff, Ark.
Standard Lumber Co., Spokane, Wash.
Standard Stained Shingle Co., Detroit, Mich.
Stave Lake Cedar, Ltd., Ruskin, B. C., Canada.
Steiner Bros. Shingle Mill, Beavercreek, Oreg.
Sterling Lumber Co., Ltd., Vancouver, B. C., Canada.
Stewart Lumber Co., A. P., Thermopolis, Wyo.
Stockton Lumber Co., Inc., Stockton, Calif.
Stoetzel, Ralph E., Chicago, Ill.
Stravs, Carl B., Minneapolis, Minn.
Strong & Hale Lumber Co., The Portland, Conn.
Super Shingle Co., The Everett, Wash.
Swan Lake Moulding Co., Klamath Falls, Oreg.
Sweet's Catalog Service, New York, N. Y. (In principle.)
Sweet's Catalog Service, Division F. W. Dodge Corporation, Chicago, Ill.
Swift Lumber Co., Inc., Utica, N. Y.
Taylor, Henry L., St. Petersburg, Fla.
Tenino Shingle Co., Inc., Tenino, Wash.
Thomas, Arthur E., Dallas, Tex.
Thompson Lumber Co., Champaign, Ill.
Thompson Lumber Co., Minneapolis, Minn.
Thurston-Flavelle, Ltd., Port Moody, B. C., Canada.
Tilden & Pepper, Philadelphia, Pa.
Tilo Roofing Co., Inc., Stratford, Conn.
Timber Engineering Co. of California, San Francisco, Calif. (In principle.)
Tomlinson, Webster, Joliet, Ill.
Totem Shake Corporation, Seattle, Wash.
Treganza, A. O., San Diego, Calif.
Trotter & Fitzgerald, Palisade, Nebr.
Tuttle Bros., Inc., Westfield, N. J.
Union Lumber Co., San Francisco, Calif.
United Mills, Ltd., New Westminister, B. C., Canada.
Vaccaro-Grobmyer Co., Forrest City, Ark.
Valley Shingle Co., Portland, Oreg.
Van Arsdale Harris Lumber Co., Inc., San Francisco, Calif.
Van Pelt, John V., Patchogue, N. Y.
Van Winkle Bromley Lumber Co., Paterson, N. J.
Vanlew Shingle Co., Everett, Wash.
Velde Lumber Co., Pekin, Ill.
Vickere Lumber Co., T. W., Sheridan, Wyo.
Victoria Lumber & Manufacturing Co., Ltd., Chemainus, B. C., Canada.
Virginia Polytechnic Institute, Blacksburg, Va.
Vogel, Joshua A., Seattle, Wash. (In principle.)
Vogel, Willis A., Toledo, Ohio.
Von Tobel Lumber Co., Ed, Las Vegas, Nev.
Wachter, Harry W. & Horace W., Toledo, Ohio.
Wagner Lumber Co., Monroe, Wash.
Waldport Shingle Co., Waldport, Oreg.
Wallace Lumber & Manufacturing Co., Sultan, Wash.
Walsh, Louis A., Waterbury, Conn.
Waples-Painter Co., Gainsville, Tex.
Ware, W. E., Salt Lake City, Utah.
Warren Lumber Co., The Fort Morgan, Colo.
Warrenton Shingle Co., Warrenton, Oreg.
Wayland Mill Co., Seattle, Wash.
Wayland Mill Co., Ballard Branch, Seattle, Wash.
Webster, Serle, & Wilson, Adrian, Los Angles, Calif. (In principle.)
West Coast Lumber Co., Sarasota, Fla.
West Coast Stained Shingle Co., Seattle, Wash.
Western Cedar Shingle Co., Anacortes, Wash.
Western Lumber Co. of San Diego, San Diego, Calif.
Weyerhaeuser Timber Co., Tacoma, Wash.
Weyerhaeuser Timber Co., Clemons Branch, Montesano, Wash.
Whatcom Falls Mill Co., Bellingham, Wash.
Wheelwright Lumber Co., Ogden, Utah.
White River Lumber Co., Enumclaw, Wash.
White & Todd, Aurora, Ill.
Wichita, City of, Wichita, Kans. (In principle.)
Wickwire, F. E., Spokane, Wash.
Wilbur Lumber Co., West Allis, Wis.
Wiles-Chipman Lumber Co., St. Louis, Mo.
Willapa Harbor Lumber Mills, Raymond, Wash.
Willatsen, Andrew, Seattle, Wash.
Williams, Coile & Pipino, Newport News, Va.
Willson, Fred F., Bozeman, Mont.
Wilson, L. J., Minneapolis, Minn.
Wilson Cypress Co., Palatka, Fla.
Winton Shingle Co., Leavenworth, Wash.

Wisconsin's Transfer Yard, Oshkosh, Wis.
Woltersdorf, Arthur, Chicago, Ill. (In principle.)
Wood Lumber Co., Birmingham, Ala.
Wood Lumber Co., E. K., Oakland, Calif., and Los Angeles, Calif.
Wood & Son, Associates, Edward J., Clarksburg, W. Va.
Wright, Frank H., Detroit, Mich. (In principle.)
Wright Lumber Co., Inc., New York, N. Y. (In principle.)
Wyman Lumber Co., M. A., Seattle, Wash.
Zoller & Muller, New York, N. Y.

U. S. GOVERNMENT

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

# COMMERCIAL STANDARDS

| CS No. | Item |
|---|---|
| 0-30. | The commercial standards service and its value to business. |
| 1-32. | Clinical thermometers (second edition). |
| 2-30. | Mopsticks. |
| 3-38. | Stoddard solvent (second edition). |
| 4-29. | Staple porcelain (all-clay) plumbing fixtures. |
| 5-29. | Steel pipe nipples. |
| 6-31. | Wrought-iron pipe nipples (second edition). |
| 7-29. | Standard weight malleable iron or steel screwed unions. |
| 8-33. | Gage blanks (second edition). |
| 9-33. | Builders' template hardware (second edition). |
| 10-29. | Brass pipe nipples. |
| 11-29. | Regain of mercerized cotton yarns. |
| 12-38. | Fuel oils (fourth edition). |
| 13-30. | Dress patterns. |
| 14-31. | Boys' blouses, button-on waists, shirts, and junior shirts. |
| 15-29. | Men's pajamas. |
| 16-29. | Wall paper. |
| 17-32. | Diamond core drill fittings (second edition). |
| 18-29. | Hickory golf shafts. |
| 19-32. | Foundry patterns of wood (second edition). |
| 20-36. | Staple vitreous china plumbing fixtures (second edition). |
| 21-36. | Interchangeable ground-glass joints, stopcocks, and stoppers (third edition). |
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| 23-30. | Feldspar. |
| 24-30. | Standard screw threads. |
| 25-30. | Special screw threads. |
| 26-30. | Aromatic red cedar closet lining. |
| 27-36. | Mirrors (second edition). |
| 28-32. | Cotton fabric tents, tarpaulins, and covers. |
| 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. |
| 33-32. | Knit underwear (exclusive of rayon). |
| 34-31. | Bag, case, and strap leather. |
| 35-31. | Plywood (Hardwood and Eastern Red Cedar) |
| 36-33. | Fourdrinier wire cloth (second edition). |
| 37-31. | Steel bone plates and screws. |
| 38-32. | Hospital rubber sheeting. |
| 39-37. | Wool and part wool blankets (second edition). |
| 40-32. | Surgeons' rubber gloves. |
| 41-32. | Surgeons' latex gloves. |
| 42-35. | Fiber insulating board (second edition). |
| 43-32. | Grading of sulphonated oils. |
| 44-32. | Apple wraps. |
| 45-38. | Douglas fir plywood (domestic grades) (third edition). |
| 46-36. | Hosiery lengths and sizes (second edition). |
| 47-34. | Marking of gold-filled and rolled-gold-plate articles other than watch cases. |
| 48-34. | Domestic burners for Pennsylvania anthracite (underfeed type). |
| 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. |
| 56-36. | Oak flooring. |
| 57-36. | Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings. |
| 58-36. | Woven elastic fabrics for use in overalls (overall elastic webbing). |
| 59-36. | Woven dress fabrics—testing and reporting. |
| 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 veneers. |
| 65-38. | Wool and part-wool fabrics. |
| 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. |
| 70-38. | Coal tar disinfectant (emulsifying type). |
| 71-38. | Cresylic disinfectants. |
| 72-38. | Household insecticide (liquid spray type). |
| 73-38. | Old growth douglas fir standard stock doors. |

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday 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.



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