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U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
(formerly National Bureau of Standards-NBS)
Office of Standards Services

Commercial Standard (CS) 171-58

Hardwood Veneered Doors (Solid-Core, Hollow-Core and Panel and Sash)

Commercial Standard (CS) 171-58, Hardwood Veneered Doors (Solid-Core, Hollow-Core and Panel and Sash) was withdrawn by the U.S. Department of Commerce on August 4, 1974.

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The following standards may be useful: I.S. 1, Series for Wood Flush Doors and I.S.1-A, Architectural Wood Flush Doors. The following organization can provide further assistance and additional information on these standards and other standards, guides, publications (such as Specifiers Guide to Wood Window and Doors), and/or for obtaining copies, contact:

Wood Window and Door Manufacturers Association
(formerly National Woodwork Manufacturers Association and
National Wood Window & Door Association-NWWDA)
1400 East Touhy Avenue, Suite 470
Des Plaines, Illinois 60018, USA
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federal register

National Bureau of Standards

VOLUNTARY STANDARDS

Action on Proposed Withdrawal

In acordance with § 10.12 of the Department's "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10, as revised; 35 FR 8349 dated May 28, 1970), notice is hereby given of the withdrawal of the following Commercial Standards:

CS 120–58, "Ponderosa Pine Doors."
CS 163–64, "Ponderosa Pine Windows, Sash and Screens (Using Single Glass and Insulating Glass)"
CS 171–58, "Hardwood Veneered Doors (Solid-Core, Hollow-Core and Panel and Sash)"
CS 190–64, "Wood Double-Hung Window Units"
CS 204–64, "Wood Awning Window Units"
CS 205–64, "Wood Casement Window Units"
CS 208–57, "Standard Stock Exterior Wood Window and Door Frames"
CS 262–63, "Water-Repellent Preservative Non-Pressure Treatment for Millwork"
CS 264–64, "Wood Horizontal-Sliding Window Units (All Sash Operating)"
CS 265–64, "Wood Horizontal-Sliding Window Units (One or More Non-Operating Sash)"
CS 266–64, "Wood Single-Hung Window Units"

It has been determined that each of these standards has become technically inadequate, and in view of the existence of up-to-date National Woodwork Manufacturers Association standards for the products covered, revision of the Commercial Standards would serve no useful purpose.

This action is taken in furtherance of the Department's announced intentions as set forth in the public notice appearing in the FEDERAL REGISTER of March 27, 1974 (39 FR 11319), to withdraw these standards.

The effective date for the withdrawal of these standards will be 60 days after the publication of this notice. This withdrawal action terminates the authority to refer to these standards as voluntary standards developed under the Department of Commerce procedures.

Dated: May 30, 1974.

RICHARD W. ROBERTS,
Director.

[FR Doc.74–12838 Filed 6–4–74;8:45 am]

COMMERCIAL STANDARD CS171-58
Supersedes CS171-50 and CS200-55
Reprinted July 1964 with amendments

Hardwood Veneered Doors

(Solid-Core, Hollow-Core, and Panel and Sash)

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A recorded voluntary standard of the trade published by the U.S. Department of Commerce

For sale by the Superintendent of Documents
U.S. Government Printing Office, Washington, D.C., 20402 – Price 20 cents

U.S. DEPARTMENT OF COMMERCE
BUSINESS AND DEFENSE SERVICES ADMINISTRATION
OFFICE OF TECHNICAL SERVICES
Commodity Standards Division

EFFECTIVE DATE

Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this commercial standard was issued by the United States Department of Commerce, effective January 15, 1959. Amended October 19, 1960, and March 5, 1962.

LUTHER H. HODGES, *Secretary*

COMMERCIAL STANDARDS

Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Technical Services, and with the National Bureau of Standards. Their purpose is to establish quality criteria, standard methods of test, rating, certification, and labeling of manufactured commodities, and to provide uniform bases for fair competition.

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

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

SIMPLIFIED PRACTICE RECOMMENDATIONS

Under a similar procedure the Commodity Standards Division cooperates with industries in the establishment of Simplified Practice Recommendations. Their purpose is to eliminate avoidable waste through the establishment of standards of practice for sizes, dimensions, varieties, or other characteristics of specific products; to simplify packaging practices; and to establish simplified methods of performing specific tasks.

The initial printing of this Commercial Standard was made possible through the cooperation of the National Woodwork Manufacturers Association in obtaining advance copies for its members.

Hardwood Veneered Doors

(Solid-Core, Hollow-Core, and Panel and Sash)
Second Edition

Effective January 15, 1959
Including October 1960, March 1962, and May 1964 amendments*

1. PURPOSE

1.1 The purpose of this Commercial Standard is to establish nationally recognized standard specifications, designs, and sizes for hardwood veneered doors for the guidance of producers, distributors, architects, builders, and the public; to provide a uniform basis for guaranteeing compliance through the use of labels or certificates; and avoid delays and misunderstandings; and to effect economies from the producer to the ultimate user through a wider utilization of standard hardwood veneered solid-core flush doors, hollow-core flush doors, and panel and sash doors.

1.2 In the development of this standard every effort has been made to include designs that will permit freedom of architectural expression. Custom-made hardwood veneered doors will continue to be available for all types of architectural designing.

1.3 In keeping with the demand for economy and simplification of installation, doors may be specified "prefit" to the exact size required (see par. 3.11.). Doors will be mortised for locks and cut for hinges when so specified.

2. SCOPE

2.1 This standard provides minimum specifications for solid-core flush doors and panel and sash doors in four nominal thicknesses, 2 1/4 inches, 1 3/4 inches, 1 3/8 inches and 1 1/8 inches and thinner; and for hollow-core flush doors in three nominal thicknesses, 1 3/4 inches, 1 3/8 inches, and 1 1/8 inches and thinner. Standard stock layouts and designs are included for exterior, interior, panel and sash, cupboard, french or casement, flush doors, and for side lights. The standard also covers construction, grades, sizes, tolerances, inspection, methods of test, labeling, and nomenclature and definitions.

2.2 This standard also provides minimum specifications for solid-core and hollow-core flush doors with plastic and hardboard faces.

2.3 The revised requirements for hollow—core flush doors covered in this standard supersede those previously covered in CS200-55.

3. GENERAL REQUIREMENTS

3.1 All doors shall be well manufactured and shall meet the following requirements.

3.2 MATERIAL.—Doors shall be constructed of thoroughly seasoned kiln dried wood, the moisture content of which shall be from 6 to 12 percent.

3.3 ADHESIVES AND BONDS.—Adhesives used for all fabrication of Type II doors shall be at least equal to those used for Type II plywood (water-resistant bond) as defined in Commercial Standard CS35-61[1] or later revision, for Hardwood Plywood, unless otherwise specified. Adhesives used for all glue lines between veneer plies and between the core unit and the veneer plies of Type I doors shall be at least equal to Type I plywood (fully waterproof bond) as

[1] Copies of Commercial Standard CS35-56, Hardwood Plywood, may be obtained for 15 cents each from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

*May 1964 amendments appear on p. 27.

defined in Commercial Standard CS35-61 or later revision, for Hardwood Plywood. Immediately after fitting and cutting for closers, weatherstrip and/or threshold, the entire door including the top and bottom edges should receive two coats of paint, varnish or sealer to prevent undue absorption of moisture. Exterior finishes should be used on the exterior face and all edges of exterior doors.

(As amended 10-19-60.)

3.3.1 *Bonds for Type II doors.*—The bond shall retain practically all of its strength when occasionally subjected to a thorough wetting and drying, and shall be of such quality that test specimens will withstand an average of 10 cycles when subjected to the 15 cycle cold soak test described in paragraph 5.1.

3.3.2 *Bonds for Type I Doors.*—The bond between the veneer plies of wood door face panels and between the door faces and the frame and core unit, shall be of the adhesive specified in par. 3.3, and door specimens shall withstand the waterproof bond test described in par. 5.2.

(As amended 10-19-60.)

3.4 SANDING.—Doors shall be clean and smoothly sanded to a surface ready for finishing without further sanding except for removal of handling marks or effects of exposure to moisture.

3.5 THICKNESSES.—Doors shall be of the following thicknesses and a thickness tollerance of plus or minus 1/16 inch shall be allowed.

Cupboard doors.....	1 1/8 inches and thinner
Side lights.....	1 3/8 inches and 1 3/4 inches.
Interior doors.....	1 1/8 inches, 1 3/8 inches and 1 3/4 inches
Exterior doors.....	1 3/4 inches and [1]2 1/4 inches

[1] 2 1/4 inches thickness applies to solid core flush doors and panel and sash doors only.

3.6 SIZE TOLERANCE.—Unless otherwise specified, a height and width tolerance of plus or minus 1/16 inch will be allowed except when doors are ordered "prefit". (See par. 3.11.)

3.7 SQUARENESS TOLERANCE.—If all four corners of a door are perfectly square (right angles), the length of the diagonal on the face from the upper right corner to the lower left corner will be the same as the length of the diagonal from the upper left corner to the lower right corner. A squareness tolerance of 1/8 inch difference in the length of these diagonals will be allowed.

3.8 WARP OR TWIST TOLERANCE. The warp or twist tolerance allowed for all doors, under normal service conditions, will be 1/4 inch except where the surface area of one face of the door is less than 10 square feet. Where the surface is less than 10 square feet, the warp or twist tolerance will be 1/8 inch, as determined by method of test described in paragraph 5.3. The warp or twist tolerance will not apply to the following:

(a) 1 3/4 inch or thicker doors that are wider than 3 feet and 6 inches or higher than 8 feet 0 inches.

(b) 1 1/8 inch and 1 3/8 inch thick doors that are wider than 3 feet 0 inches or higher than 7 feet 0 inches.

(c) Doors with face veneers of different species.

(d) Doors that are improperly hung or do not swing freely.

3.9 OPENINGS.—Flush doors may be cut for light openings as ordered. The utility or structural strength of the door must not be impaired in cutting the door for lights, louvers, panels, and any other special details. When solid-core and hollow-core flush doors are cut for lights and louvers, that portion between the cut-out area and the edge of the door shall not be less than 5 inches wide at any point; and the cut-out area shall not exceed 40 percent of the area of the face of the door. In addition, for hollow-core doors, the cut-out area shall not exceed half the height of the door, and shall be suitably prepared.

3.10 *Light Opening Weatherproofing.*—The method of weatherproofing light openings in exterior flush doors shall be optional with the manufacturer, provided the method will prevent effectively moisture from leaking into the core.

3.11 *Prefitting.*—When ordered "prefit" doors shall be supplied as follows:

(a) All doors shall be prefit to 3/16 inch less in width and 1/8 inch less in height than the nominal door size.

A tolerance of 1/32 inch, plus or minus, will be allowed.

(b) All prefit doors shall have vertical edges slightly eased.

(c) All prefit doors shall have skid blocks, scuff strips, or other type of protection attached to the bottom of the door.

3.12 *Finger-joints.*—A quality finger-joint is defined as a series of fingers machined on the ends of two pieces to be joined, which mesh and are held firmly in position by a water-resistant adhesive applied in accordance with the adhesive manufacturer's specifications. The water-resistant adhesive shall conform to Federal Specification MMM-A-125,[2] or be such as may be used for Type II plywood (water resistant bond) as defined in Commercial Standard CS35-61, or later revision, or equal. The parts joined by the finger-joint shall be precision machined..

3.13 *Preparation for hardware.*—Doors shall be mortised for locks and cut for hinges when so specified (see par. 4.2.4). Unless otherwise specified, the location of the lock centerline and hinge cuts will be in accordance with each door manufacturer's regular practice.

3.14 *Plastic Faced Doors (laminated thermosetting decorative sheets).*—Flush doors (solid-core and hollow-core) may be furnished with plastic faces at the request of the purchaser. The plastic faces shall conform to Type 1 (general purpose) or Type 4 (hardboard core) of NEMA Standard LP2-1957[3], or later revision. Type 1 plastic face panels shall have a wood back and shall be of two or more plies, with a total minimum thickness of 1/8 inch. The plastic face shall be of standard commercial thickness, but not less than 1/16 inch. The wood ply or plies shall be not less than 1/16 inch thick and shall be of any suitable hardwood. Type 4 plastic face panels shall be of standard commercial thickness but not less than 5/32 inch. Doors ordered "prefit" or with plastic edges shall comply with paragraph 3.11 (prefitting). Cutting, sawing, routing, drilling, etc., shall be done in accordance with part 7 of NEMA standard LP2-1957, or later revision.

3.15 *Hardboard Faced Doors.*—Flush doors (solid-core and hollow-core) may be furnished with hardboard faces at the request of the purchaser. The hardboard faces shall conform to Federal Specification LLL-H-35[4], Type II, smooth one side or smooth two sides, 1/8 inch thick, except that the modulus of rupture shall be not less than 6,000 pounds per square inch.

(As amended 10-19-60.)

4. DETAIL REQUIREMENTS

4.1 SOLID-CORE FLUSH VENEERED DOORS

4.1.1 *Core-wood.*—The core shall be constructed of wood blocks or strips or a combination of wood blocks and strips. The wood blocks or strips shall be not more than 2 1/2 inches wide, surfaced two sides, and of a low-density wood. (Low-density woods are those weighing not more than 2,300 pounds per 1,000 board-feet when kiln dried to a moisture content of 6 percent. The use of sound, wormy chestnut will, however, be permitted). No core shall contain more than one species of wood. No open space between core blocks or strips, or defects in core blocks or strips, shall be large enough to show through the face or materially affect the strength of the door for the purpose intended.

4.1.1.1 *Continuous block or strip core.*—The wood blocks or strips shall be bonded together with the end joints staggered in adjacent rows. After bonding, each core shall be machined to a smooth uniform thickness. The core shall be bonded to the face panels.

4.1.1.2 *Framed block or strip core.*—The wood blocks or strips shall be laid up within a stile and rail frame with the end joints of the blocks or strips in adjacent rows staggered. The minimum width of the stiles shall be 1 1/8 inches and the minimum width of the rails shall be 2 1/2 inches. The blocks or strips shall not be bonded together but the core shall be bonded to the face panels.

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[2] Copies of Federal Specification MMM-A-125, Adhesives, Casein-Type, Water and Mold Resistant, may be obtained for 10 cents each from the Business Service Center, General Services Administration, Regional Office Building, 7th and D Streets SW, Washington 25, D. C.

[3] Copies of the National Electrical Manufacturers' Association Standard LP2-1957, may be purchased for $1.75 from the Association which is located at 155 E. 44th Street, New York 17, N. Y.

[4] Copies of Federal Specification LLL-H-35, Hardboard, Fibrous-Felted (Fiberboard), may be obtained for 10 cents each from the Business Service Center, General Services Administration, Regional Office Building, 7th and D Streets SW, Washington 25, D. C.

4.1.1.3 *Stile and rail core.*—Stile and rail cores shall be constructed with stile, rail, and panel units, each unit being made up entirely of blocks bonded together. In the stile and rail units, the blocks shall be laid up with the grain running parallel and in the direction of the longitudinal dimension of the stile or rail. In the panel units when the core is to be crossbanded, the blocks shall be laid up with the grain running parallel and vertically, and parallel and horizontally when no crossbanding is to be used. The core shall be bonded to the face panels.

4.1.2 *Core-mineral composition.*—The core shall consist of mineral materials bonded into inert and rigid pieces of full core thickness, not exceeding 28 pounds per cubic foot density and 6 percent moisture content. Joints shall be tight and the core material shall be bonded to the stiles and rails. Wood lock blocks may be inserted as required or specified. The core shall be bonded to the face panels.

4.1.3 *Edge strips.*—The side edge strips of all doors except framed block or strip core doors shall be not less than 1/2 inch wide after trimming.

The species of wood used for the side edge strips shall be optional with the manufacturer, unless otherwise specified. When the wood used for the side edge strips is specified to be the same species as that used for the face veneers, it will not be matched for color unless so specified. Top and bottom edge strips may be of any species of hardwood or softwood, not less than 1/2 inch wide after trimming.

In lieu of top and bottom edge strips, the top and bottom of the door shall be given two or more coats of paint or varnish before it leaves the factory. At the option of the manufacturer, flush veneered doors may be constructed of stile, rail, and panel units, each unit made up entirely of blocks with not less than 1/2 inch wide edge strips on the exposed edges of the stiles and rails, but not on the ends of the stiles. At the option of the manufacturer, one finger-joint as defined in paragraph 3.12 will be allowed in each side edge strip. (See par. 4.1.5 for cupboard doors.)

4.1.4 *Veneers.*—Veneers for crossbanding and faces combined shall be of plywood of two or more plies, with a total minimum thickness of 1/10 inch before sanding. Face veneers shall be of standard commercial thickness, but not less than 1/28 inch before sanding.

4.1.4.1 When no crossbanding is used the core shall be of stile and rail construction and the face shall be at least 3/16 inch thick before sanding.

4.1.5 *Cupboard doors.*—The edge strips of cupboard doors, with regard to size and species, shall be optional with the manufacturer. Top and bottom edge strips may be omitted, in which case exposed ends need not be painted. Face veneers shall be of standard commercial thickness, but not less than 1/28 inch thick before sanding. The crossbanding shall be not less than 1/20 inch thick when dried.

4.2 HOLLOW-CORE FLUSH VENEERED DOORS.

4.2.1 *Core material and construction.*—Cores may be of wood, or a wood derivative, or of Class A insulation board which complies with Commercial Standard CS42–49[5], or latest revision. This Standard embraces three types of core construction for hollow-core doors, viz: (a) Mesh core (also known as lattice or grid core); (b) ladder core; and (c) implanted blanks core. (See Sec. 11 for definitions of these three types.)

4.2.1.1 *Mesh core and ladder core.*—Core parts shall be uniformly spaced. The area of the intervening spaces shall be optional with the manufacturer provided the core supports the outer plywood sufficiently to insure strength and stability adequate for normal usage, and provides a flat surface after bonding with no irregular surfaces showing on the faces after sanding. All core parts or members shall be bonded to face panels as specified in paragraph 3.3.

4.2.1.2 *Implanted blanks core.*—The blanks shall be of a density of not less than 15 pounds per cubic foot at a moisture content of 12 percent, and shall be uniformly spaced. The area of intervening spaces between the blanks shall be optional with the manufacturer provided the core supports the outer plywood sufficiently to insure strength and stability adequate for normal usage, and provides a flat surface after bonding with no irregular surfaces

[5] Copies of Commercial Standard CS42-49, Structural Fiber Insulating Board, may be obtained for 15¢ each from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

showing on the faces after sanding. All blanks shall be bonded to face panels as specified in paragraph 3.3.

4.2.2 *Edge strips.*—At the option of the manufacturer, the finished edges may be either the outside edges of the stiles and rails or a separate edge strip.

The species of wood used for the side edge strips shall be optional with the manufacturer, unless otherwise specified. When the wood used for the side edge strips is specified to be the same species as that used for the face veneers, it will not be matched for color unless so specified.

When a separate edge strip is provided on stiles, the minimum width of the edge strip shall be 1/2 inch after trimming; and the minimum width of stiles specified in paragraph 4.2.3 may be reduced, provided the combined width of the stile and the edge strip is not less than 1 1/8 inches after trimming.

At the option of the manufacturer, one finger-joint as defined in paragraph 3.12, will be permitted in each side edge strip (of hollow-core flush doors).

(As amended 10-19-60.)

4.2.3 *Stiles and rails.*—The minimum width of stiles shall be 1 1/8 inches after trimming. (See also par. 4.2.2 relating to edge strips.) The exposed edge of the stile shall be smooth, straight cut, and shall be free from knots, pitch pockets, and other defects for a distance of at least 1/2 inch from the out side edge along the entire length of the stile. The minimum width of the rails shall be 2 1/2 inches after trimming.

Stiles and rails may be solid or made by gluing up blocks or strips with joints staggered, provided the outer edge strip is solid for the full length of the stile or rail.

4.2.4 *Lock blocks.*—Two lock blocks shall be provided in each standard size door, each located directly adjacent to the stile with the midlength point of the lock block at the midlength point of the stile. For doors not within the range of standard sizes, lock blocks, if required, must be specified by the purchaser. The minimum length of each lock block shall be 20 inches. The minimum combined width of the lock block and its adjacent stile shall be 4 inches. Lock blocks may be solid or made by gluing up strips or blocks.

4.2.5 *Face panels.*—Face panels shall be plywood of two or more plies, with a total minimum thickness of 1/10 inch before sanding. Face shall be of standard commercial thickness, but not less than 1/28 inch before sanding.

4.3 PANEL AND SASH DOORS

4.3.1 *Construction.*—Panel and sash doors shall be assembled by dowelled construction, that is, stiles and rails shall be bored to receive dowels not less than 1/2 inch in diameter by approximately 5 inches long for doors 1 1/8, 1 3/8, 1 3/4 and 2 1/4 inches thick (except that narrow-stile doors may have shorter dowels). When 1/2 inch diameter dowels are used they shall be of hardwood. When 5/8 inch diameter dowels are used they may be either of hardwood or softwood. Dowels shall have glue grooves, and/or indentations, and be sized for a drive fit. Dowels shall be set in a water-resistant adhesive and extend approximately one-half their length into each stile and rail, and shall be assembled under pressure. The minimum number of dowels at each end of rails shall be as follows:

Rails under 4 1/4 inches wide..... 1 dowel.
Rails 4 1/4 to 7 inches wide..... 2 dowels.
Rails over 7 inches wide..... 3 dowels plus 1 additional dowel for each additional full 3 inches in width.

4.3.2 *Cores.*—The cores for veneered stiles and rails shall be constructed of low-density wood blocks S2S, not more than 2 1/2 inches wide, and of varing lengths, with end joints in adjacent rows staggered. (Low-density woods are those weighing not more than 2,300 pounds per 1,000 board-feet when kiln-dried to a moisture content of 6 percent. The use of sound, wormy chestnut will, however, be permitted.) No core shall contain more than one species of wood. Core blocks shall be bonded with a water-resistant adhesive.

4.3.3 *Edge strips.*—The side edge strips shall be not less than 1/2 inch wide after trimming, and of a species of wood to match the face veneers. Top and bottom edge strips may be of any species of hardwood or softwood, not less than 1/2 inch wide after trimming. At the option of the manufacturer, one finger-joint, as defined in paragraph 3.12, will be allowed in each side edge strip.

4.3.4 *Sticking.*—Stiles and rails shall have solid sticking. An edge strip 3/4 inch wide before machining, and of the same

species of wood as the face veneers shall be applied to the panel edge of all stiles and rails. All intersections shall be coped with joints well fitted. "Cove and bead" or "Ovolo" sticking shall be standard on all hardwood veneered doors. (See fig. 1.) Imperfect sticking which may develop in machining shall be carefully repaired or neatly replaced. Panels are also illustrated in figure 1.

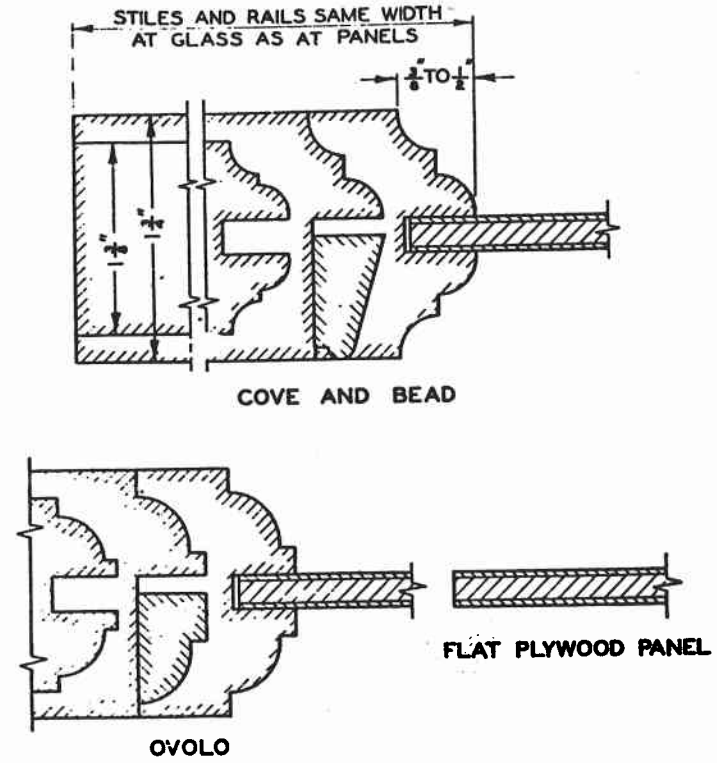


Figure 1. Sticking and panel details.

4.3.5 *Panels (flat hardwood plywood).*—The minimum standard thickness of three-ply hardwood plywood panels shall be not less than 1/4 inch with a tolerance of minus 1/32 inch after sanding. They shall conform to Good grade (1) for the species of hardwood specified, as defined in Commercial Standard CS35--61, or latest revision.

4.3.6 *Glass stops and muntins.*—Glass stops and muntins shall be furnished in the same species of wood as is used for the face veneer.

4.3.7 *Face veneers.*—Face veneers for stiles and rails shall be of the species of hardwood specified, and shall be not less than 1/8 inch thick before sanding.

4.3.8 *Measurements.*—See paragraph 8.1.

5. METHODS OF TEST

5.1 COLD SOAK TEST FOR TYPE II DOORS.—The purpose of this test is to determine whether or not the bond between the plies of each plywood face, and between the plywood faces and the stiles and rails will successfully withstand the effects of repeated wetting and drying. The door to be tested shall be selected at random and shall be in the white. The test specimens shall be four rectangular 6 inch x 6 inch corner sections of the door, and shall include the stile and rail and core material. The specimens shall be submerged in water at room temperature for a period of 4 hours, after which they shall be allowed to dry at a temperature of between 70° and 80° F. for a period of 20 hours. The cycle shall

then be repeated until all specimens fail or until 15 cycles have been completed.

It shall be determined that the test specimens have successfully withstood this test if there is no single delamination between any two layers of veneer or between the plywood face and the stile or rail which is greater than 2 inches in continuous length and over 1/8 inch in depth at any point. (As amended 3/5/62.)

These allowable delaminations will be in addition to delaminations due to pitch pockets, knot holes, shake, wormholes, splits, and other wood defects. If the specimens successfully withstand an average of 10 cycles of this test, the door shall be deemed to have passed. If the door, as described above, passes the test, the lot from which the door was selected shall be deemed to have passed.

5.2 WATERPROOF BOND TEST FOR TYPE I DOORS.--The door to be tested shall be selected at random and shall be in the white. The following test specimens are required: 10 specimens of the plywood face of the door of the form shown in figure 2 of Commercial Standard CS35--61, or later edition, and 4 rectangular 6- by 6-inch corner sections of the door, including the stile and rail and core material. (Only the 4 rectangular 6- by 6-inch corner sections are required to be tested on panel and sash doors.) If the faces of hollow core doors are two-ply, the plywood shear specimens shall be cut to include a section of the stile, which section shall then be cut again so that the part of the stile remaining is about 1/10 inch in thickness and forms the third ply of the shear specimen. If the faces of solid core doors are two-ply, the plywood shear specimens shall be cut to include a section of the core which section shall be cut again so that the part of the core remaining is about 1/10 inch in thickness and forms the third ply of the shear specimen. If the faces of solid core doors are three-ply, the core shall be cut away from the specimen leaving three plies for the shear test.

All the specimens shall be boiled in water for 4 hours and then dried for 20 hours at a temperature of 145° F. (± 5° F.). They shall then be boiled again for 4 hours and cooled in water. The 10 specimens of the plywood face of the door shall be tested, while wet, in a shear testing machine to failure as described in paragraph 5.3 of Commercial Standard CS35-61. These specimens shall meet the requirements of table 5, paragraph 5.4.2, Commercial Standard CS35-61, or latest edition.

There shall be no separation of the plies at the glue line. If the number of plies exceeds three, at least one-half of the test shall include the innermost joints. The specimens of the 6- by 6-inch corner section shall not be subjected to the shear test but it shall be determined that the specimens have withstood the boil test if, after redrying for 20 hours at 145° F. (± 5° F.), the joints show no single delamination between any two layers of veneer or between the plywood face and the stile or rail which is more than 2 inches in length or more than 1/8 inch in depth at any point. These allowable delaminations will be in addition to delaminations due to pitch pockets, knotholes, shake, wormholes, splits, and other wood defects. It shall be deemed that the door has passed if (a) the specimens of the plywood face meet the requirements of the test, and (b) three of the four 6-by 6-inch corner sections withstand the test, as described above. If the specimens of the plywood face fail to withstand the test, it shall be repeated with 10 additional specimens cut from another door. If these 10 additional specimens meet the requirements of the test, the door shall be deemed to have passed this part of the test. If more than 1 of the 6-by 6-inch corner sections fail to withstand the test, it shall be repeated with 4 additional specimens cut from another door. If 3 of the 4 additional specimens successfully withstand the test, the door shall be deemed to have passed this part of the test. In cases where a retest either of the plywood face or of the 6-by 6-inch corner sections is required as described above, it is not necessary that the same door shall pass both tests; it will be sufficient if one door passes the plywood face test and another door from the same lot passes the test of the 6-by 6-inch corner sections. If the door or doors pass the waterproof bond test as described above, it shall be deemed that the lot from which the door or doors were selected has passed.

5.3 WARP, BOW, AND TWIST.--Warp means any distortion in the door itself not in its relation to the frame or jamb in which it is hung. Bow shall be determined by

applying a straightedge to the concave face of the door and measuring the maximum obtainable deflection from the straightedge to the door as the straightedge is placed in different positions from edge to edge across the door, and from end to end along the door. Twist shall be determined by placing the face of the door against a true plane surface. A simple device to determine and measure twist may be made by placing two cross-members on a post, one about door height and the other slightly above the floor. The cross-members must be perfectly straight and true and plumbed into perfect alinement.

6. GRADING

6.1 PREMIUM GRADE.--All hardwood veneered solid-core flush doors, hollow-core flush doors, and panel and sash doors that meet the following requirements shall be known as Premium Grade:

6.1.1 The solid-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.1.1 through 4.1.5 of this standard.

6.1.2 The hollow-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.2.1 through 4.2.5 of this standard.

6.1.3 The panel and sash doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.3.1 through 4.3.8 of this standard.

6.1.4 The face veneers of premium grade doors shall be of the species of hard wood specified and each face shall be made of tight and smoothly cut veneers. When the face consists of more than one piece, the joints shall be tight and approximately parallel to the vertical edges of the door. The inherent natural characteristics and types of matching which will be permitted for each species and the defects which will not be permitted, are listed in table I.

(As amended 10-19-60.)

6.2 GOOD GRADE.--All hardwood veneered solid-core and hollow-core flush doors that meet the following requirements shall be known as Good Grade:

6.2.1 The solid-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.1.1 through 4.1.5 of this standard.

6.2.2 The hollow-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.2.1 through 4.2.5 of this standard.

6.2.3 The face veneers of good grade doors shall be of the species of hardwood specified, and each face shall be made of tight and smoothly cut veneers. When the face consists of more than one piece, the joints shall be tight and approximately parallel to the vertical edges of the door. The pieces need not be matched for color or grain, but sharp contrasts (see definition p. 21) will not be permitted. The inherent natural characteristics which will be permitted for each species, and the defects which will not be permitted, are listed in table II.

(As amended 10-19-60.)

6.3 SOUND GRADE.--All hardwood veneered solid-core, and hollow-core flush doors that meet the following requirements shall be known as Sound Grade:

6.3.1 The solid-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.1.1 through 4.1.5 of this standard.

6.3.2 The hollow-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.2.1 through 4.2.5 of this standard.

6.3.3 The face veneers of all Sound Grade doors shall be of the species of hardwood specified. Any defect that will not be visible after two coats of paint are applied will be permitted.

6.4 PLASTIC GRADE.--All solid-core and hollow-core flush doors that meet the

following requirements shall be known as Plastic Grade:

6.4.1 The solid-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.1.1 through 4.1.5 of this standard.

6.4.2 The hollow-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements

Table I.—Summary of Characteristics and Defects for Premium Grade Species for Door Faces

Characteristics	Rotary cut ash sycamore elm	Rotary cut birch					Plain sliced cherry	Rotary cut gum, tupelo, bay and magnolia			Quarter sliced gum	Quarter sliced limba
		Natural	Selected for white	Selected for red	Uniform light	Uniform dark		Unselected for color	Selected for white	Selected for red		
Sapwood	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No
Heartwood	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Color streaks or spots	Yes	Yes	Slight	Yes	Slight	Yes	Yes	Yes	Slight	Yes	Yes	Slight
Color variation	Yes	Yes	Slight	Yes	Slight	Yes	Yes	Yes	Slight	Yes	Yes	Slight
Mineral streaks	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight
Small burls	Yes	Yes	Few	Few	Few	Few	Yes	Yes	Yes	Yes	Few	Few
Occasional pin knots	Yes	Yes	Yes	Yes	Few	Few	Yes	Yes	Yes	Yes	Yes	Yes
Inconspicuous patches	Small	Small	Small	Small	Yes	Yes	Small	Small	Small	Small	Small	Small
Knots (other than pin knots)	No	No	No	No	No	No	No	No	No	No	No	No
Worm holes	No	No	No	No	No	No	No	No	No	No	No	No
Open splits or joints	No	No	No	No	No	No	No	No	No	No	No	No
Shake or doze	No	No	No	No	No	No	No	No	No	No	No	No
Rough cut	No	No	No	No	No	No	No	No	No	No	No	No
Gum spots							Small					
Cross bars												
Type of matching	Book[1] or slipped[2]	Book[1]	Book[1]	Book[1]	Slip[2]	Slip[2]	Book[1]	See Note[3]	See Note[3]	See Note[3]	Book[1] or slipped[2]	Book[1]

Characteristics	Plain sliced mahogany	Quarter sliced mahogany	Rotary cut maple sliced maple		Red oak and white oak			Walnut		Lauan	
			Natural	Selected for white	Rotary cut	Half round plain sliced	Rift sliced	Half round plain sliced	Quarter sliced	Rotary cut	Quarter sliced
Sapwood	No	No	Yes	Yes	Yes	No	No	No	No	No	No
Heartwood	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Color streaks or spots	Slight	Slight	Yes	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight
Color variation	Slight	Slight	Yes	Slight	Yes	Slight	Slight	Yes	Yes	Slight	Slight
Mineral streaks	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight
Small burls	Few	Few	Yes	Few	Yes	Yes	Few	Yes	Yes	Yes	Few
Occasional pin knots	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inconspicuous patches	Small	Small	Small	Small	Small	Small	Small	Small	Small	Small	Small
Knots (other than pin knots)	No	No	No	No	No	No	No	No	No	No	No
Worm holes	No	No	No	No	No	No	No	No	No	No	No
Open splits or joints	No	No	No	No	No	No	No	No	No	No	No
Shake or doze	No	No	No	No	No	No	No	No	No	No	No
Rough cut	No	No	No	No	No	No	No	No	No	No	No
Gum spots											
Cross bars		Few							Few		Few
Type of matching	Book[1]	Book[1]	Book[1]	Book[1] or slipped[2]	See Note[3]	Book[1] or slipped[2]	Book[1] or slipped[2]	Book[1]	Book[1] or slipped[2]	See note[3]	Book[1]

[1]Book matched—Matched for color and grain at joints. [2]Slip matched—Must be matched in sequence with tight side out. [3]Matched at the joints for color.

(As amended 10-19-59.)

Table II.—Summary of Characteristics and Defects for Good Grade Species for Door Faces

Characteristics	Rotary cut ash basswood elm	Rotary cut birch natural	Plain sliced cherry	Rotary cut gum, tupelo, bay magnolia and poplar			Rotary cut natural maple	Rotary cut oak	Rotary cut sycamore	Rotary cut lauan
				Unselected for color	Uniform light	Uniform dark				
Sapwood	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Heartwood	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Color streaks or spots	Yes	Yes	Yes	Yes	Slight	Yes	Yes	Yes	Yes	Yes
Color variation	Yes	Yes	Yes	Yes	Slight	Yes	Yes	Yes	Yes	Yes
Mineral streaks	Yes	Yes	Slight	Slight	Slight	Slight	Yes	Yes	Yes	Slight
Sound burls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sound knots	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inconspicuous patches	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Knotholes	No	No	No	No	No	No	No	No	No	No
Worm holes	No	No	No	No	No	No	No	No	No	No
Open splits or joints	No	No	No	No	No	No	No	No	No	No
Shake or doze	No	No	No	No	No	No	No	No	No	No
Rough cut	No	No	No	No	No	No	No	No	No	No
Gum spots			Yes							

Explanatory note: The above tables I and II, have been correlated to the maximum extent practicable with the Commercial Standard CS35-61 for hardwood plywood.

(As amended 10-19-60.)

set forth in paragraphs 4.2.1 through 4.2.5 of this standard.

6.4.3 The faces of all Plastic Grade doors shall conform to the requirements set forth in paragraph 3.14 of this standard.

6.5 HARDBOARD GRADE.--All solid-core and hollow-core flush doors that meet the following requirements shall be known as Hardboard Grade:

6.5.1 The solid-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.1.1 through 4.1.5 of this standard.

6.5.2 The hollow-core flush doors shall be produced in conformity with the general requirements set forth in paragraphs 3.1 through 3.13 and the detail requirements set forth in paragraphs 4.2.1 through 4.2.5 of this standard.

6.5.3 The faces of all Hardboard Grade doors shall conform to the requirements of par. 3.15 of this standard.

7. STANDARD SIZES

7.1 The standard stock sizes of hardwood veneered doors as shown in Table III are generally available for the standard stock designs and layouts shown in Section 8 of this standard. However, doors of other sizes including intermediate sizes are usually available on special order and may be considered as conforming to this Standard, provided they meet or exceed all other requirements specified herein.

(As amended 3/5/62.)

Table III.--Standard sizes

Interior Panel Doors A,B,D,F,G,I,L,M,S 1-3/8" and 1-3/4"	
1'6" x 6'6" 6'8" 2'0" x 6'0" 6'6" 6'8" 7'0" 2'4" x 6'0" 6'6" 6'8" 7'0"	2'6" x 6'0" 6'6" 6'8" 7'0" 2'8" x 6'0" 6'6" 6'8" 7'0" 3'0" x 6'8" 7'0" 3'4" x 6'8" 1-3/4" only 7'0" 1-3/4" only

Interior Doors A-A One-light doors only 1-3/8" and 1-3/4"	
2'0" x 6'6" 6'8" 7'0" 2'4" x 6'6" 6'8" 7'0"	2'6" x 6'6" 6'8" 7'0" 2'8" x 6'8" 7'0" 3'0" x 6'8" 7'0"

Interior French or Casement Doors A-A Divided-light doors 1-3/8" and 1-3/4"	
2'0" x 6'6" 6'8" 7'0" 2'4" x 6'6" 6'8" 7'0"	2'6" x 6'6" 6'8" 7'0" 2'8" x 6'8" 7'0" 3'0" x 6'8" 7'0"

Exterior Doors B-B, E-E, F-F, J-J, K-K, L-L 1-3/4" and 2-1/4"	
2'8" x 6'8" 7'0" 3'0" x 6'8" 7'0"	3'4" x 6'8" 7'0"

Exterior Doors A' - A' one-light doors only (5-1/2" stiles, 6-1/2" top rails, 18-1/2" bottom rails) 1-3/4" and 2-1/4"	
2'8" x 6'8" 7'0" 3'0" x 6'8" 7'0" 7'6"	[1] 3'4" x 6'8" 7'0" 7'6" 8'0"

Exterior French or Casement Doors A'-A' divided-light doors (5-1/2" stiles, 6-1/2" top rails, 18-1/2" bottom rails) 1-3/4" and 2-1/4"	
2'8" x 6'8" 7'0"	3'0" x 6'8" 7'0"

Side Lights X-X and Y-Y 1-3/8" and 1-3/4"	
1'0" x 6'8" 7'0"	1'2" x 6'8" 7'0"

[1]Doors 3'4" wide shall have 6-1/2" stiles.

Table III.—Standard sizes —Con.

Interior Flush Doors
Hollow-Core
1-3/8" and 1-3/4"

1'6" x 6'6"	2'4" x 6'8"
6'8"	6'10"
6'10"	7'0"
7'0"	2'6" x 6'0"
1'8" x 6'6"	6'6"
6'8"	6'8"
6'10"	6'10"
7'0"	7'0"
1'10" x 6'6"	2'8" x 6'0"
6'8"	6'6"
6'10"	6'8"
7'0"	6'10"
2'0" x 6'0"	7'0"
6'6"	2'10" x 6'0"
6'8"	6'6"
6'10"	6'8"
7'0"	6'10"
2'2" x 6'0"	7'0"
6'6"	3'0" x 6'0"
6'8"	6'6"
6'10"	6'8"
7'0"	6'10"
2'4" x 6'0"	7'0"
6'6"	

Interior Flush Doors
Solid-Core
1-3/8" and 1-3/4"

1'6" x 6'6"	2'6" x 6'0"
6'8"	6'6"
2'0" x 6'0"	6'8"
6'6"	7'0"
6'8"	2'8" x 6'0"
7'0"	6'6"
2'4" x 6'0"	6'8"
6'6"	7'0"
6'8"	3'0" x 6'8"
7'0"	7'0"
	3'4" x 6'8"
	7'0"

Exterior Flush Doors
Hollow-Core
1-3/4"

2'8" x 6'8"	3'0" x 6'8"
6'10"	6'10"
7'0"	7'0"
2'10" x 6'8"	
6'10"	
7'0"	

Exterior Flush Doors
Solid-Core
1-3/4" and 2-1/4"

2'4" x 6'8"	3'0" x 6'8"
7'0"	7'0"
2'6" x 6'8"	3'4" x 6'8"
7'0"	7'0"
2'8" x 6'8"	3'6" x 6'8"
7'0"	7'0"

Flush Dwarf Doors
1-1/8"
(When so specified, doors can be furnished, 1-3/8" thick.)

1'6" x 4'0"	2'4" x 4'0"
4'6"	4'6"
5'0"	5'0"
5'6"	5'6"
2'0" x 4'0"	2'6" x 4'0"
4'6"	4'6"
5'0"	5'0"
5'6"	5'6"

Flush Cupboard Doors
1-1/8" and thinner

1'0" x 1'6"	1'6" x 1'6"
2'0"	2'0"
2'6"	2'6"
3'0"	3'0"
3'6"	3'6"
4'0"	4'0"
4'6"	4'6"
5'0"	5'0"
1'2" x 1'6"	5'6"
2'0"	1'8" x 2'0"
2'6"	2'6"
3'0"	3'0"
3'6"	3'6"
4'0"	4'0"
4'6"	4'6"
5'0"	5'0"
5'6"	2'0" x 2'0"
1'4" x 1'6"	2'6"
2'0"	3'0"
2'6"	3'6"
3'0"	4'0"
3'6"	4'6"
4'0"	5'0"
4'6"	5'6"
5'0"	

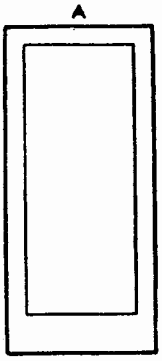
8. STANDARD DESIGNS AND LAYOUTS

8.1 The standard designs and layouts shall be as shown in the illustrations herein. Measurements for stiles, rails, mullions, and muntins given in the layouts are over-all (face measurement plus the sticking). A tolerance of 1/8 inch in width will be permitted. Unless otherwise specified, glass measurements may vary not more than 1/4 inch from those shown in the layouts. (These tolerances allow for variations in practices of the different manufacturers.)

STANDARD DESIGNS AND LAYOUTS[6]

INTERIOR DOORS

A



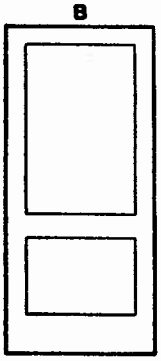
ONE PANEL

Stiles and top rail..... 4⅜"
Bottom rail..... 9⅝"

3-ply plywood flat panel. Sticking: Standard.

Can also be furnished with 5½" stiles and top rail, 12" bottom rail.

B

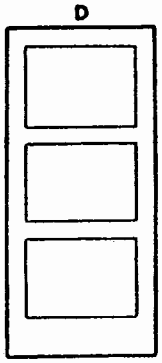


TWO PANEL

Stiles and top rail..... 4¾"
Lock rail..... 8"
Bottom rail..... 9⅝"

3-ply plywood flat panels. Sticking: Standard.

D

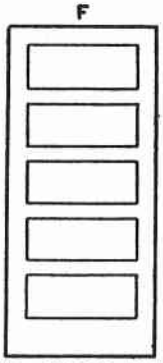


THREE PANEL

Stiles and top rail..... 4¾"
Cross rails..... 4¾"
Bottom rail..... 9⅝"

3-ply plywood flat panels. Sticking: Standard.

F

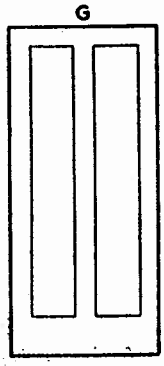


FIVE CROSS PANEL

Stiles and top rail..... 4¾"
Intermediate rails..... 4⅝"
Bottom rail..... 9⅝"

3-ply plywood flat panels. Sticking: Standard.

G

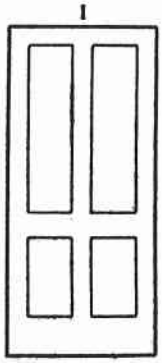


TWO VERTICAL PANEL

Stiles and top rail..... 4¾"
Bottom rail..... 9⅝"
Vertical mullion..... 4⅛"

3-ply plywood flat panels. Sticking: Standard.

I



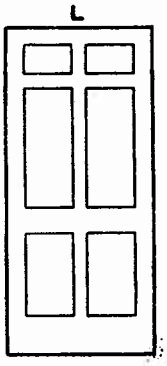
FOUR PANEL

Stiles and top rail..... 4⅜"
Lock rail..... 8"
Muntins..... 4⅝"
Bottom rail..... 9⅝"

3-ply plywood flat panels. Sticking: Standard.

[6] See table III for sizes available.

L



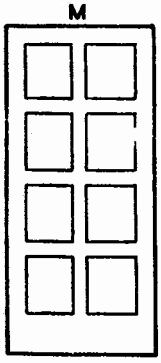
SIX PANEL COLONIAL

Stiles and top rail	4¼"
Lock rail	8"
Intermediate rails and mullions	3⅞"
Bottom rail	9¼"
Height of top panels over-all	7⅛"

3-ply plywood flat panels. Sticking: Standard.

Doors 1'6" are made one panel wide.

M



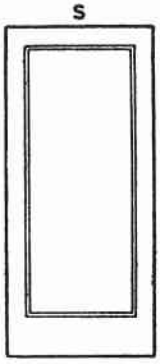
EIGHT PANEL

Stiles and top rail	4¼"
Intermediate rails and mullions	3⅞"
Bottom rail	9⅛"

3-ply plywood flat panels. Sticking: Standard.

Doors 1'6" are made one panel wide.

S

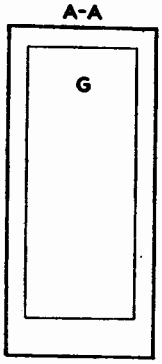


INNER FRAME

Stiles and top rail	4¼" face
Bottom rail	9¼" or 9½" face

3-ply plywood flat panel. Sticking: Standard.

A-A



ONE LIGHT

Stiles and top rail	4¼"
Bottom rail	9¼"

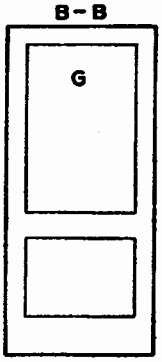
Sticking: Standard.

Size of door	Size of glass
2' 0" x 6' 8"	15½" x 66½"
2' 6" x 6' 8"	21½" x 66½"
2' 8" x 6' 8"	23½" x 66½"
3' 0" x 6' 8"	27½" x 66½"

Beads for glass included.

Can also be furnished with 5½" stiles and 18¾" bottom rail. (See design A'–A', page exterior doors.) When so specified, doors with light openings will be divided according to purchaser's specifications.

B–B



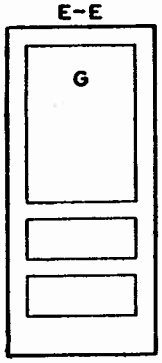
Stiles and top rail	4¾"
Lock rail	8"
Bottom rail	9¾"

Sticking: Standard.

Size of door	Size of glass
2' 8" x 6' 8"	23½" x 40"
3' 0" x 6' 8"	27½" x 40"
3' 0" x 7' 0"	27½" x 44"

Beads for glass included.

E–E



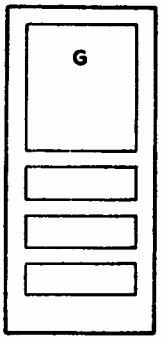
Stiles and top rail	4¾"
Lock rail	4¾"
Intermediate rail	4¾"
Bottom rail	9¾"

3-ply plywood flat panels. Sticking: Standard.

Size of door	Size of glass
2' 8" x 6' 8"	23½" x 36"
3' 0" x 6' 8"	27½" x 36"
3' 0" x 7' 0"	27½" x 40"

When so specified, doors with light openings will be divided according to purchaser's specifications.

F–F



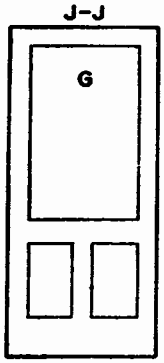
Stiles and top rail	4¾"
Cross rails	4¾"
Bottom rail	9¾"

3-ply plywood flat panels. Sticking: Standard.

Size of door	Size of glass
2' 8" x 6' 8"	23½" x 30"
3' 0" x 6' 8"	27½" x 30"
3' 0" x 7' 0"	27½" x 34"

Beads for glass included.

J–J



Stiles and top rail	4¾"
Lock rail	8"
Muntins	4¾"
Bottom rail	9¾"

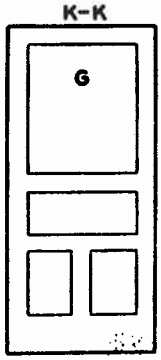
3-ply plywood flat panels. Sticking: Standard.

Size of door	Size of glass
2' 8" x 6' 8"	23½" x 40"
3' 0" x 6' 8"	27½" x 40"
3' 0" x 7' 0"	27½" x 44"

Beads for glass included.

When so specified, doors with light openings will be divided according to purchaser's specifications.

K-K



Stiles and top rail	4¾"
Cross rails	4¼"
Muntins	4¼"
Bottom rail	9⅝"

3-ply plywood flat panels. Sticking: Standard.

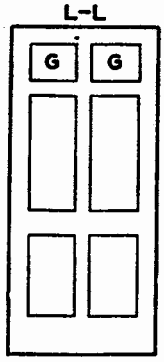
Size of door	Size of glass
2' 8" x 6' 8"	23½" x 34"
3' 0" x 6' 8"	27½" x 34"
3' 0" x 7' 0"	27½" x 38"

Beads for glass included.

Also supplied with 5½" stiles and top rail 5⅜" cross rails and muntins, when so specified. Top panel made two panels wide when so specified.

When so specified, doors with light openings will be divided according to purchaser's specifications.

L-L



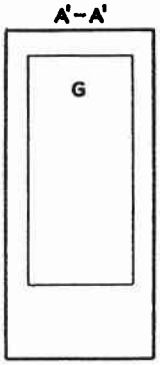
Stiles and top rail	4⅝"
Lock rail	8"
Top cross rail and mullions	3½"
Bottom rail	9⅝"

3-ply plywood flat panels. Sticking: Standard.

Size of door	Size of glass
2' 8" x 6' 8"	9½" x 7½"
3' 0" x 6' 8"	11½" x 7½"
3' 0" x 7' 0"	11½" x 7½"

Beads for glass included.

A'-A'



Stiles	5½"
Top rail	6½"
Bottom rail	18½"

Size of door	Size of glass
2' 8" x 6' 8"	22" x 56"
3' 0" x 6' 8"	26" x 56"
3' 0" x 7' 0"	26" x 60"
3' 4" x 6' 8"	28" x 56"
3' 4" x 7' 0"	28" x 60"

Doors 3' 4" wide have 6½" stiles.

Beads for glass included.

This door can also be furnished with divided lights.

SIDE LIGHTS

Stiles..... 2½"
Top rail..... 6½"
Bottom rail.... 18½"

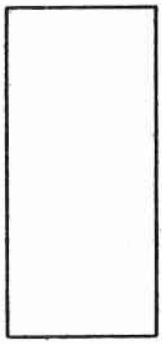
Stiles..... 2½"
Top rail..... 5½"
Lock rail..... 8"
Bottom rail.... 9⅝"

Beads for glass included.

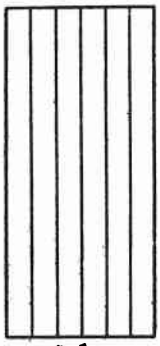
Top and bottom rails made same width as that in doors with which they are used. Sticking: Standard.

When so specified, side lights will be divided according to purchaser's specifications.

FLUSH DOORS



PLAIN FLUSH
SOLID OR HOLLOW CORE



FLUSH "V" GROOVED
SOLID CORE

Light openings may be cut in these doors to suit the wishes of the purchaser.

9. INSPECTION

9.1 All hardwood veneered doors sold as conforming to this Commercial Standard are subject to inspection in the condition received, and complaints regarding any shipment shall be made within 10 days after receipt thereof. Any rejected doors shall be held, properly protected, for a period of 30 days after notice of rejection and pending adjustment.

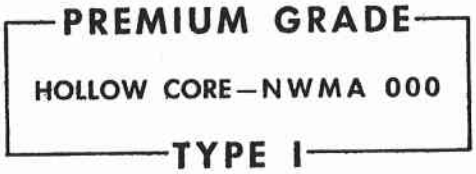
10. LABELING AND GRADE MARKING

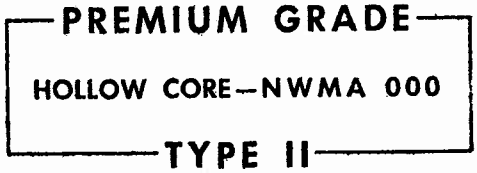
10.1 LABELING.—In order to assure the purchaser that he is getting hardwood veneered doors of the quality specified herein, producers may individually, or in concert with their trade associations, grademark each door by stamp, brand, or label as conforming to this standard. The following wording is recommended for the label:

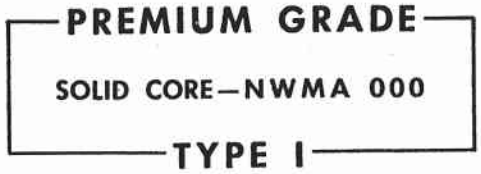
> This Grade hardwood veneered door complies with all requirements of Commercial Standard CS171-58, as developed by the trade under the procedure of the Commodity Standards Division, and issued by the U. S. Department of Commerce.
>
> _____
> (Name of manufacturer)

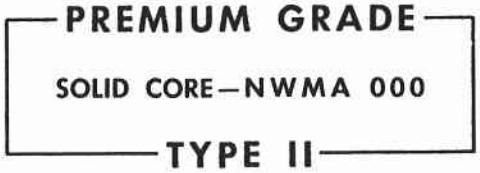
10.2 EXAMPLE OF GRADE MARKING.—The following grade-marks have been adopted by the National Woodwork Manufacturers Association, Inc., as a means of assuring consumers and distributors that hardwood veneered doors bearing these grade-marks conform to the high standards of quality defined herein.

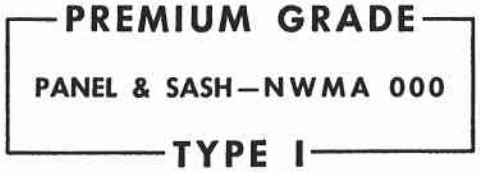
(a) For hardwood veneered doors of Premium Grade:



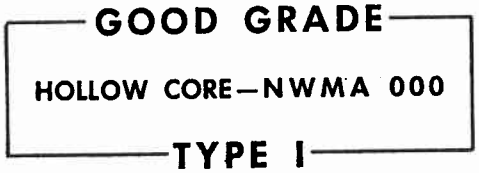


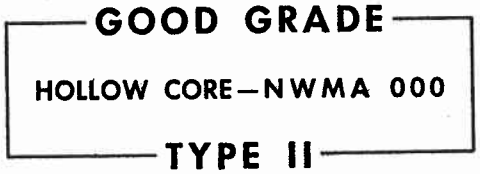


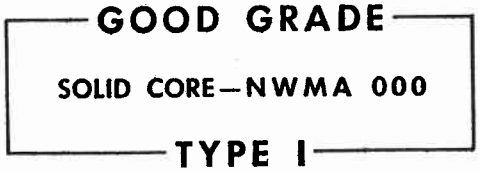


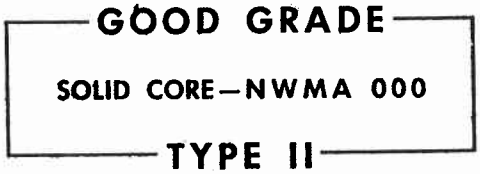


(b) For hardwood veneered doors of Good Grade:









(c) For hardwood veneered doors of Sound Grade:

SOUND GRADE
HOLLOW CORE—NWMA 000
TYPE I

SOUND GRADE
HOLLOW CORE—NWMA 000
TYPE II

SOUND GRADE
SOLID CORE—NWMA 000
TYPE I

SOUND GRADE
SOLID CORE—NWMA 000
TYPE II

(d) For flush doors of Plastic Grade:

PLASTIC GRADE
HOLLOW CORE—NWMA 000
TYPE II OR BETTER

PLASTIC GRADE
SOLID CORE—NWMA 000
TYPE II OR BETTER

(e) For flush doors of Hardboard Grade:

HARDBOARD GRADE
HOLLOW CORE—NWMA 000
TYPE II OR BETTER

HARDBOARD GRADE
SOLID CORE—NWMA 000
TYPE II OR BETTER

11. NOMENCLATURE AND DEFINITIONS

11.1 The definitions below give the meaning of the various terms used in this standard.

Bars.—Wood divisions separating lights of glass.

Coped.—The ends of rails, mullions, muntins, or bars so shaped that they will cover and fit the contour of the sticking.

Core.—The innermost layer in veneered door construction.

Solid-core.—A core of solid wood blocks or strips.

Floating core.—The Term "floating core" is a misnomer. The proper term for a nonbonded core is "framed block or strip core."

Hollow-core.—A core assembly of strips or other units of wood, wood derivative, or insulation board complying with Class A insulating board of CS42-49, or latest issue, which supports the outer plywood faces, and with intervening hollow cells or spaces.

Mesh core.—A hollow-core composed of strips of wood, wood derivative, or insulation board complying with Class A board of CS42-49, with the strips so joined and/or interlocked as to form a mesh, lattice, or grid throughout the core area, and with air cells or spaces between the strips.

Ladder core.—A hollow-core composed of strips of wood, wood derivative, or insulation board complying with Class A board of CS42-49, with the strips running

either horiziontally or vertically throughout the core area, and with air cells and/or spaces between the strips.

Implanted blanks core.—A hollow-core composed of a series of blanks, forms, tubular columns, or shapes of wood, wood derivative, or insulation board complying with Class A board of CS42-49, which may or may not be joined together; implanted between and supporting the outer faces of the door, and with air cells or spaces between the blanks.

Crossbanding.—The veneer used in the construction of flush doors which is placed between the core and face veneers with the direction of the grain at right angles to that of the face veneer.

Flush door.—Made up of a core, crossbanding, and flat face veneers; or a core and flat face veneers only.

Five-ply flush door.—Door has two plies of veneer on each side of a solid-core.

Seven-ply flush door.—Door has three plies of veneer on each side of a solid-core.

Panel door.—Made up of stiles, rails, and one or more panels, the stiles and rails forming the frame around the panel or panels.

Sash door.—Same as a panel door, except that one or more panels are replaced by glass.

Edge strip.—A strip of wood along the outside edge of the two sides and top and bottom of the door. It may be either the outside edges of the stiles and rails or a separate strip glued to the edges of the stiles or rails.

Kiln-dried.—Lumber dried in a closed chamber in which the removal of moisture is controlled by artificial heat and usually by relative humidity.

Lock block.—A block of wood (solid or made by gluing-up strips or blocks) the thickness of the door stile, which is attached to the inside edge of the stile and into which the lock is fitted.

Mullion.—An upright or vertical bar in a door.

Muntin.—Any short or light bar, either vertical or horizontal, in a door between glass or panels, and not extending the full width or length of the door.

Plywood face.—The plywood used for the face of the door.

Rails.—The cross or horizontal pieces of the framework of a door.

Bottom rail.—The bottom cross or horizontal piece of a door.

Lock rail.—The wide cross or horizontal rail of a door at lock height.

Top rail.—The top cross or horizontal piece of a door.

Sharp Contrasts.—For purposes of this standard, this term means that veneer of lighter than average color should not be joined at the edges with veneer of darker than average color, and that two adjacent pieces of veneer should not be widely dissimilar in grain, figure, and natural character markings.

Sticking.—A mold that is worked on the edges of stiles, rails, mullions, muntins, or bars, adjacent to panels or glass.

Stiles.—The upright or vertical outside pieces of a door.

Veneered door.—A door made up of a core and face veneers (may include crossbanding in flush door).

HISTORY OF PROJECT

On September 30, 1949, the National Woodwork Manufacturers Association requested the cooperation of the Commodity Standards Division in the establishment of a commercial standard for hardwood veneered doors. A draft of the proposed standard was submitted on January 3, 1950, to manufacturers, and to a number of technical, distributor, and consumer organizations for advance review and comment. All comments were carefully considered and the draft adjusted to represent the composite views of all interested groups. The recommended commercial standard was circulated on May 17, 1950, to the trade for further consideration and written acceptance. Comments received from a number of manufacturers indicated that a few additional changes should be made to improve and strengthen the commercial standard in the best interests of all concerned. These modifications were referred on September 7, 1950, to all acceptors of record. Upon receipt of official acceptances estimated to represent a satisfactory majority of the production by volume, and in the absence of active valid opposition, the standard was promulgated on November 1, 1950, as Commercial Standard CS171-50, to become effective for new production on December 1, 1950.

SECOND EDITION. On October 16, 1957, the National Woodwork Manufacturers Association, Inc., submitted a proposed revision of CS171-50 to the Commodity Standards Division for coordination. This proposed revision also included the revised requirements of CS200-55, Hardwood Veneered Hollow-core Flush Doors.

The suggested changes included: The addition of hardboard and plastic faces, of 2 1/4 inch thick exterior doors and 1 1/8 inch thick interior doors, new adhesive requirements and tests, new core constructions, and new grading and grade-marking requirements; and the deletion of toilet doors.

The proposed revision was submitted to the Standing Committees of both Commercial Standards. Minor adjustments were made including the elimination of 1 3/8 inch thick exterior doors. Then, on February 14, 1958, the recommended revision was circulated widely to the trade for consideration and written acceptance. Considerable comment developed. A list of modifications to resolve the comment was received from the Association and was circulated to the trade on June 30, 1958.

A sufficient number of written acceptances was received to represent a satisfactory majority of the production by volume, and in the absence of active valid opposition, the standard was promulgated on December 15, 1958, as Commercial Standard CS171-58. This standard superseded CS171-50 and CS-200-55 and becomes effective for new production on January 15, 1959. An amendment was requested by the National Woodwork Manufacturers Association on August 26, 1959, after being approved by the Standing Committee and by the Acceptors, it was made an effective part of CS171-58 on October 19, 1960.

Project Manager: William H. Furcolow
Commodity Standards Division
Office of Technical Services
U. S. Department of Commerce

STANDING COMMITTEE

The following individuals comprise the membership of the Standing Committee, which is appointed to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Commodity Standards Division, Office of Technical Services, U. S. Department of Commerce, which acts as secretary for the committee.

A. C. Hammerand, Farley & Loetscher Manufacturing Co., Dubuque, Iowa. (Chairman)
Oscar Witt, Weyhaeuser Co., Roddis Div., Marshfield, Wis.
P. J. Goodnight, Buell & Co., 2439 Swiss Ave., Dallas 1, Tex. (Representing the Southern Sash & Door Jobbers Association.)
Carl G. Horn, Iroquois Millwork Corp., P. O. Box 391, Albany 1, N. Y. (Representing Northern Sash & Door Jobbers Association.)
John A. Reidelbach, Jr., Home Manufacturers Association, 910 17th St., NW, Washington 6, D. C.
Alvin K. Dusel, 1991 D Street, Hayward, Calif. (Representing the American Institute of Architects.)
Lester T. Burn, Bureau of Indian Affairs, U. S. Department of the Interior, Washington 25, D. C.
B. H. Armiger, F. H. Martin Construction Co., 955 East Jefferson Ave., Detroit 7, Mich. (Representing The Associated General Contractors of America.)
Federal Housing Administration, Washington 25, D. C. (Non-Voting Observer) (as amended 6/61)

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 _____

Commodity Standards Division
Office of Technical Services
United States Department of Commerce
Washington 25, D. C.

Gentlemen:

We believe that this Commercial Standard 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 hardwood veneered doors. We reserve the right to depart from it as we deem advisable.

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

Signature of authorized officer[2] _____
(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. [2] Please see ..... 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:

Enforcement.—Commercial Standards are commodity specifications 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 U. S. 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.

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 departure; however, such signature indicates an intention to follow the standard, where practicable, in the production, distribution, or consumption of the article in question.

The Department's Responsibility.—The major function performed by the Department of Commerce in the voluntary establishment of Commercial Standards on a nationwide basis is fourfold: First, to act as 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.

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 of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

ACCEPTORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, or purchase of hardwood veneered doors. In accepting the standard, they reserved the right to depart from it as they individually deem advisable. It is expected that hardwood veneered doors 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.

TRADE ASSOCIATIONS (General Support)

American Specifications Institute, Chicago, Ill.
Associated General Contractors of America, Inc., Washington, D. C.
Carolina Lumber & Building Supply Association, Charlotte, N. C.
Hardwood Plywood Institute, McLean, Va.
Michigan Association of the Traveling Lumber & Sash & Door Salesmen, Detroit, Mich.
Michigan Retail Lumber Dealers Association, Lansing, Mich.
Mississippi Retail Lumber Dealers Association, Inc., Jackson, Miss.
National Woodwork Manufacturers Association, Chicago, Ill.
Prefabricated Home Manufacturers' Institute, (now Home Manufacturers' Association), Washington, D. C.
Southern Sash & Door Jobbers Association, Memphis, Tenn.
Timber Engineering Co., Washington, D. C.

FIRMS

Algoma Plywood & Veneer Co., Div. of United States Plywood Corp., Algoma, Wis.
American Cyanamid Co., New York, N. Y.
American Door Co., Bellevue, Mich.
American Door Distributors Inc., Waltham, Mass.
American Sash & Door Co., Kansas City, Mo.
Ashton, C. J., Co., Royal Oak, Mich.
Associated Door & Plywood Co., Chicago, Ill.

Bach, E. E. Millwork Co., Minneapolis, Minn.
Baldwin Lumber Co., Inc., Jersey City, N. J.
Baxter, C. B., & Co., Kansas City, Mo.
Beasley & Sons Co., Nashville, Tenn.
Bel Air Door Co., Inc., Alhambra, Calif.
Big Four Lumber Co., Cleveland, Ohio
Binswanger & Co., Inc., Richmond, Va.
Blount Lumber Co., Lacona, N. Y.
Bosman & Casson, Inc., Union, N. J.
Boston Milling Co., Neponset, Mass.
Brockway-Smith-Haigh-Lovell Co., Boston, Mass.
Brust & Brust, Milwaukee, Wis.
Buckley, F. S., Door Co., San Francisco, Calif.
Buell & Co., Dallas, Tex.
Buffalo Plywood Corp., Buffalo, N. Y.
Buffelen Sales Co., Ft. Worth, Tex.

Caddo Door & Veneer Co., Shreveport, La.
Camlet, J. Thomas, Garfield, N. J.
Carnahan Manufacturing Co., Loogootee, Ind.
Carr, Adams & Collier Co., Dubuque, Iowa.
Central Woodwork, Inc., Memphis, Tenn.
Chilton, J. E., Millwork & Lumber Co., Inc., Nashville, Tenn.
Cincinnati Sash & Door Co., Cincinnati, Ohio
City Lumber Yard, Iron Mountain, Mich.
Clarke Veneers & Plywood, Jackson, Miss.
Combs Lumber Co., Lexington, Ky.
Concord Lumber Co., Inc., Albany, N. Y.
Concord Millwork Corp., Rochester, N. Y.
Continental Millwork Corp., South Bend, Ind.
Cooper Plycore Doors, Inc., Oneida, Tenn.
Cooper Woodworking Co., Inc., Oneida, Tenn.
Crawford Sash & Door Co., El Paso, Tex.
Crown City Lumber & Mill Co., Pasadena, Calif.
Curtis Companies, Inc., Clinton, Iowa

Dakota Sash & Door Co., Aberdeen, S. Dak.
Darby, Bogner & Associates, West Allis, Wis.
D'Arcy Co., Inc., Dover, N. H.
Davis Manufacutring Co., Inc., New Orleans, La.
Dayton Sash & Door Co., Dayton, Ohio
Delmarva Lumber & Millwork Co., Westville, N. J.
Delta Millwork, Inc., Jackson, Miss.
Derr, Wm. H., Co., Philadelphia, Pa.
Detroit, City of, Department of Public Works, Detroit, Mich.
Donlin Co., St. Cloud, Minn.
Dykes Lumber Co., New York, N. Y.

Edwards Sash, Door & Lumber, Inc., Tampa, Fla.
Eggers, F., Plywood & Veneer Co., Two Rivers, Wis.
Emery Industries, Inc., Cincinnati, Ohio
Evansville Sash & Door Co., Inc., Evansville, Ind.

Fabrow Manufacturing Inc., Toledo, Ohio
Farley & Loetscher Manufacturing Co., Dubuque, Iowa
Farley Loetscher Co., Sioux Falls, So. Dak.
Fidler's Manufacturing Co., Inc., Inglewood, Calif.
Fischer Lime & Cement Co., Memphis, Tenn.
Flannagan, Eric G., and Sons, Henderson, N. C.
Flint Sash & Door Co., Inc., Flint, Mich.
Florida Made Door Manufacturing Co., Orlando, Fla.
Ft. Wayne Builders' Supply Co., Ft. Wayne, Ind.

General Millwork Corp., Utica, N. Y.
General Millwork Supply Inc., Binghamton, N. Y.
General Plywood Corp., Louisville, Ky.
General Roofing & Construction Co., Saginaw, Mich.
Gibson Door Co., Inc., Utica, N. Y.
Glen-Mar Door Manufacturing Co., Phoenix, Ariz.
Grand Rapids Sash & Door Co., Grand Rapids, Mich.
Grayson Millwork & Supply Co., Sherman, Tex.

H & S Lumber Co., Charlotte, N. C.
Hager & Cove Lumber Co., Lansing, Mich.
Haley Bros., Santa Monica, Calif.
Harbor Sales Co., Inc., Washington, D. C.
Harbor Sales Co., Inc., Baltimore, Md.
Harman Plywood & Lumber Co., Birmingham, Mich.
Harmon Construction Co., Oklahoma City, Okla.
Hixon-Peterson Lumber Co., Fostoria, Ohio
Houston Sash & Door Co., Houston, Tex.
Huber-Lanctot Housewrecking Corp., Buffalo, N. Y.
Hurd Millwork Corp., Medford, Wis.
Hussey-Williams Co., Inc., Ozone Park, N. Y.
Huttig Sash & Door Co., Roanoke, Va.
Huttig Sash & Door Co., Inc., St. Louis, Mo.

Intercoastal Door Corp., Long Island City, N. Y.
Interstate Sash & Door Co., Canton, Ohio

Jackson Sash & Door Co., Inc., Jackson, Miss.
Jacksonville Sash & Door Co., Inc., Jacksonville, Fla.
Japan Trade Center, New York, N. Y. (general support)

Kaaz Woodwork Co., Inc., Leavenworth, Kans.
Keely, S. S. & Sons, Inc., Philadelphia, Pa.
Kemp. Bunch & Jackson, Jacksonville, Fla.
Kneeland-Bigelow Distributing Co., Bay City, Mich.
Kritser Supply Co., Amarillo, Tex.
Kullberg Manufacturing Co., Minneapolis, Minn.

Law, Law, Potter & Nystrom, Madison, Wis.
Loeb, Laurence M., White Plains, N. Y.
Loetscher & Burch Manufacturing Co., Des Moines, Iowa
Lumber & Millwork Company of Philadelphia, Philadelphia, Pa.
Lumber Dealers Inc., Denver, Colo.
Lumbermen's Millwork & Supply Co., Ardmore, Okla.
Lundgren Dealers Supply, Inc., Tacoma, Wash.
Lundgren Door & Plywood Inc., Fresno, Calif.
Lundgren Wholesale Supply, Inc., Yakima, Wash.

Martin, F. H. Construction Co., Detroit, Mich.
Mason City Millwork Co., Mason City, Iowa
Meadow River Lumber Co., Rainelle, W. Va.
Melnick, J. A., Corp., Brooklyn, N. Y.
Mengel Co., Louisville, Ky.
Midland Building Industries, Inc., Indianapolis, Ind.
Midwest Jobbers, Inc., Chicago, Ill.
Miller, Vrydagh & Miller, Terre Haute, Ind.
Minnesota and Ontario Paper Co., Minneapolis, Minn. (general support)
Mohawk Flush Door Corp., Sunbury, Pa.
Mohawk Flush Doors, Inc., South Bend, Ind.
Morgan Co., Oshkosh, Wis.
Morgan Millwork Co., Baltimore, Md.
Morgan Sash & Door Co., Chicago, Ill.
Morgan, L. C., Sash & Door Co., Lawton, Okla.
Muhlenberg Bros., Wyomissing, Pa.
M W Distributors, Rocky Mount, Va.

National Manufacturing Co., Sterling, Ill.
National Plywood Co., Inc., New York, N. Y.
National Woodworks, Inc., Birmingham, Ala.
Neal Millwork & Supply Co., Oklahoma City, Okla.
Nebraska, University of, Lincoln, Nebr.
Newton Lumber & Manufacturing Co., Colorado Springs, Colo.
New York Central Railroad Co., New York, N. Y.
Noelke-Lyon Manufacturing Co., Burlington, Iowa
Northern Specialty Co., Merrill, Wis.
Nurenburg, W. S., Ft. Worth, Tex.

Oklahoma Sash & Door Co., Oklahoma City, Okla.

Paine Lumber Co., Ltd., Oshkosh, Wis.
Palmetto Sash & Door Co., Inc., Orangeburg, S. C.
Pease Woodwork Co., Hamilton, Ohio
Porter-Hadley Co., Grand Rapids, Mich.
Portsmouth Lumber Corp., Portsmouth, Va.

Ramsey, A. H., & Sons, Inc., Miami, Fla.
Ready Hung Door Corp., Ft. Worth, Tex.
Reints Sash & Door Co., Oklahoma City, Okla.
Rinn-Scott Lumber Co., Chicago, Ill.
Robbins Door & Sash Co., Scranton, Pa.
Rock Island Millwork Co., Rock Island, Ill.
Roddis Plywood Corp., Marshfield, Wis.
Roessner, R. Gommel., Austin, Tex.
Royal Oak Wholesale Co., Royal Oak, Mich.
Rust Sash & Door Co., Kansas City, Mo.

Sammac Door Manufacturing Co., Fort Worth, Tex.
Sand Door & Plywood Co., Los Angeles, Calif
Scott Millwork Co., Winter Park, Fla.
Scott Sash & Door Co., Inc., Little Rock, Ark.
Sears, Roebuck & Co., Chicago, Ill.
Seattle Door Co., Inc., Kirkland, Wash.
Security Door & Panel Corp., Cornwall Landing, N. Y.
Semling-Menke Co., Inc., Merrill, Wis.
Shenk, Henry, Co., Erie, Pa.
Sierra Mill & Building Materials Co., Sacramento, Calif.
Simons Woodwork, Minneapolis, Minn.
Smith, Allen A., Co., Toledo, Ohio
Snell Sash & Door Co., St. Paul, Minn.
Snell Sash & Door Co., Omaha, Nebr.
Sothman Co., Grand Island, Nebr.
Southern Pacific Co., San Francisco, Calif.
Southwestern Sash & Door Co., Joplin, Mo.
Splicedwood Corp., Mellen, Wis.
Standard Lumber & Supply Co., Ft. Wayne, Ind.
Standard Lumber Company, Pine Bluff, Ark.
Stevens, Frank, Sash & Door Co., Waco, Texas
Stravs, Carl B., Minneapolis, Minn.
Superior Woodwork Co., San Antonio, Tex.
Swan Lake Moulding Co., Klamath Falls, Oreg.
Sweetwater Sash & Door Co., Sweetwater, Tex.

Teachout Sash, Door & Glass Co., Detroit, Mich.
Tennessee Building Products, Inc., Nashville, Tenn.
Texas Sash & Door Co., Ft. Worth, Tex.
Thorne, Henry Calder, Ithaca, N. Y.
Throop-Martin Co., Columbus, Ohio
Toombs & Co., Springfield, Mo.
Trexler Lumber Co., Allentown, Pa.
Triangle Distributors, Inc., Tupelo, Miss.
Tulane Hardwood Lumber Co., Inc., New Orleans, La.

United States Testing Co., Inc., Los Angeles, Calif. (general support)
United States Testing Co., Inc., Hoboken, N. J.

Vancouver Door Co., Inc., Montesano, Wash.
Vancouver Door Sales Co., Inc., Phoenix, Ariz.
Vaughan, Geo. C., & Sons, Nederland, Tex.
Vaughan, Geo. C., & Sons, Houston, Tex.
Victoria Sash & Door Co., Inc., Shreveport, La.
Villaume Box & Lumber Co., St Paul, Minn.

Wahlfeld Manufacturing Co., Peoria, Ill.
Walled Lake Door Co., Detroit, Mich.
Walling Sash & Door Co., Wichita, Kans.
Wanke Panel Co., Portland, Oreg.
Washington Woodworking Co., Inc., Washington, D. C.
Wearn Lumber Co., Charlotte, N. C.
Welch, Carroll E., Huntington, N. Y.
Welch Sash & Door Co., Port Huron, Mich.
West Coast Screen Co., Los Angeles, Calif.
Western Door & Sash Co., Oakland, Calif.
Weybrecht's, J. T., Sons Co., Alliance, Ohio
Wheaton Lumber Co., Inc., Wheaton, Md.
Whissel, L. N., Lumber Co., Inc., Buffalo, N. Y.
Whitmer-Jackson Co., Inc., Buffalo, N. Y.
Whittier Lumber & Millwork Co., Newark, N. J.
Wilson Lumber Co., San Antonio, Tex.

Young, Ray, Radburn, Fair Lawn, N. J.
Young Doof Co., Novi, Mich.
Young Door Co., Sunbury, Pa.

Zegers, Inc., Chicago, Ill.
Zuber Lumber Co., Atlanta, Ga.

Ace Sash and Door Co., North Hollywood, Calif.
Bay Door Corp., Tampa, Fla.
Bellwood Co., Orange, Calif.
Bradley Plywood Corp., Savannah, Ga.
Flint Sash and Door Co., Inc., Flint, Mich.
Fresno Planing Mill Co., Fresno, Calif.
Leland Door Co., Suttons Bay, Mich.
Metropolitan Millwork Inc., Brooklyn, N. Y.
Millwork, Inc., Hopkins, Minn.
Puerto Rico Millwork Corp., Santurce, Puerto Rico
Tampa Door Corp., Tampa, Fla.
Wisconsin Door Co., Livonia, Mich.
(As amended 10-19-60.)

GOVERNMENT

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Amendment to Commercial Standard CS 171–58
for

HARDWOOD VENEERED DOORS
(Solid-Core, Hollow-Core, and Panel and Sash)

Effective May 15, 1964

This amendment forms a part of Commercial Standard CS 171–58. All copies of the standard should include the following changes:

Page 5, par. 4.1.1 *Core-wood for solid-core flush veneered doors and page 7, par. 4.3.2 Core-wood for panel and sash doors.*—Delete these paragraphs and substitute the following new paragraph in each instance:

"*Wood core*—The core shall be constructed of wood blocks or strips or a combination of wood blocks or strips. No core shall contain more than one species of wood. No open spaces between core blocks or strips, or defects in core blocks or strips, shall be large enough to show through the face or materially affect the strength of the door for the purpose intended. The wood blocks or strips shall be not more than 2½ inches wide, surfaced two sides, and of the following species.

Alder	Fir, Noble	Pines, white
Aspen	Fir, White	Poplar, yellow
Basswood	Fir, Douglas	Redwood
Cottonwood, black	(Below S.G. of 0.42)	Spruce, Englemann
Cottonwood, eastern	Hemlock, eastern	Spruce, red
Cedar, Incense	Hemlock, western	Spruce, Sitka
Cedar, Western red	Pine, Ponderosa	Willow, black

Page 5, par. 4.1.1.2 *Framed block or strip core.* Seventh line, change the minimum width of rails from "2½ inches" to "1⅛ inches."

Page 11, par. 6.4.1 *Solid-core plastic grade flush doors*—Change paragraphs referenced from "4.1.1 through 4.1.5", to "4.1.1 through 4.1.3".

Page 11, table 1, *Summary of characteristics and defects for premium grade species for door faces:*

(1) Under heading of "Characteristics" delete "Occasional" preceding "pin knots" in seventh line.

(2) Under column for "Natural rotary cut birch", change "Yes" for small burls, and pin knots to "Few".

(3) Under columns for "Selected white" and "Selected red birch" changes "Yes" for pin knots to "Few".

(4) Under columns for "Uniform light" and "Uniform dark birch", change "Yes" for Inconspicuous patches to "Small".

(5) Under columns for "Uniform light" and "Uniform dark birch", change "Slip [2]" for type of matching to "See note [4]".

(6) Add the following as footnote number 4: "[4] Matched for uniform color and similar grain".

Page 12, par. 6.4.2 *Hollow-core plastic grade flush doors*—Change paragraphs referenced from "4.2.1 through 4.2.5" to "4.2.1 through 4.2.4".

Page 12, par. 6.5.1 *Solid-core hardboard grade flush doors*—Change paragraphs referenced from "4.1.1 through 4.1.5" to "4.1.1 through 4.1.3".

Page 12, par. 6.5.2 *Hollow-core hardboard grade flush doors*—Change paragraphs referenced from "4.2.1 through 4.2.5" to "4.2.1 through 4.2.4".

Page 21, section 11. *Nomenclature and Definitions*—After definition of "Plywood face", add the following definition: "*Patches*—Matching wood pieces carefully inserted and glued into door face after defective portions have been removed."

Office of Commodity Standards
National Bureau of Standards
U.S. Department of Commerce

Approved by the Standing Committee, and acceptors.

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