Commercial Standard 171-50

Hardwood Veneered Doors

A RECORDED VOLUNTARY STANDARD OF THE TRADE

COMMODITY STANDARDS

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UNITED STATES DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary
Hardwood Veneered Doors

[Effective December 1, 1950]

1. Purpose

1.1 The purpose of this commercial standard is to establish standard specifications 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 certifications; to avoid delays and misunderstandings; and to effect economies from the producer to the ultimate user through a wider utilization of standard hardwood veneered 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 modern trend toward economy and simplification of installation, doors may be specified "prefit" to the exact size required. (See par. 3.7). Doors will be mortised for locks and cut for hinges when so specified.

2. Scope

2.1 This standard provides minimum specifications for panel and sash doors, solid-core flush doors, and hollow-core flush doors in four nominal thicknesses, $\frac{3}{4}$, $1\frac{1}{8}$, $1\frac{3}{8}$, and $1\frac{1}{4}$ in. Standard stock layouts and designs are included for cupboard, exterior, French or casement, flush, interior, and toilet doors, and for side lights. The standard also covers construction, grades, sizes, tolerances, inspection, labeling, and nomenclature and definitions.

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 wood redried by the manufacturer to a moisture content of 6 to 12 percent.

3.3 Adhesives and bondage.—Adhesives for all fabrication shall be of a water-resistant type (unless phenolic resin adhesive, or equal, is specified for face veneers and crossbanding), equally distributed over the surfaces, and applied under pressure.

3.4 Sanding.—Faces of all doors shall be smoothly machine sanded except that doors with face veneers $\frac{3}{8}$ in. thick or less shall be smoothly belt sanded. This is not to be interpreted as meaning that the doors will be ready for painter's finish.
3.5 **Thicknesses.**—Doors shall be of the following thicknesses and a thickness tolerance of minus 1/16 in. shall be allowed, except that for 3/4-in. cupboard doors a thickness tolerance of 1/2 in. shall be allowed:

- Cupboard doors........................................................................... 3/4" and 1 1/4".
- Side lights.................................................................................... 1 1/2" and 1 3/4".
- Interior doors................................................................................ 1/2" and 3/4".
- Exterior doors............................................................................... 1/2" and 3/4".
- Toilet doors.................................................................................. 1/2"

3.6 **Size tolerance.**—Unless otherwise specified, a height and width tolerance of plus or minus 3/8 in. shall be allowed except when doors are ordered “prefit.”

3.7 **Prefitting.**—When ordered “prefit,” doors shall be supplied as follows:

(a) All doors shall be prefit to 3/4 in. less in width and 1/8 in. less in height than the nominal door size, with a tolerance of 1/2 in., plus or minus, 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.

## 4. GRADING

4.1 **Grade 1.**—The faces of all Grade 1 doors shall be of the species of wood specified and equal to Grade 1 (Good) as defined in Commercial Standard 35-49, Hardwood Plywood, or later revision.

4.2 **Grade 1P.**—The faces of Grade 1P shall be of the species of wood specified and equal to Grade 2 as defined in Commercial Standard 35-49, Hardwood Plywood, or later revision. This grade is suitable for a paint finish.

## 5. DETAIL REQUIREMENTS

5.1 **Panel and Sash Doors**

5.1.1 **Construction.**—Panel and sash doors shall be assembled by what is known as “dowelled construction,” that is, stiles and rails to be bored to receive dowels not less than 1/2 in. in diameter by approximately 5 in. long for doors 1 1/2, 1 3/4 and 1 3/4 in. thick (except that narrow-stile doors may have shorter dowels). When 1/2-in. dowels are used they shall be of hardwood. When 5/8-in. 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 1/2 in. wide...................................................... 1 dowel.
- Rails 4 1/4 to 7 in. wide...................................................... 2 dowels.
- Rails over 7 in. wide............................................................ 3 dowels, plus 1 additional dowel for each additional full 3 in. in width.

5.1.2 **Cores.**—The cores for veneered stiles and rails shall be constructed of low-density wood blocks S2S, not more than 2 1/2 in. wide, and of varying 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 shall, however, be permitted. No core shall contain more than one species of wood. Core blocks shall be bonded together with water-resistant adhesive.

5.1.3 Edge strips.—The side edge strips of all doors shall be not less than $\frac{3}{8}$ in. thick 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 $\frac{1}{2}$ in. thick after trimming.

5.1.4 Sticking.—Stiles and rails shall have solid sticking. An edge strip $\frac{3}{8}$ in. thick before machining, of the same species of wood as the face veneers, shall be applied to the panel edges of all stiles and rails. All intersections shall be coped with joints well fitted. "Cove and bead" or "Ovolo A" 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 illustrated in figure 1.

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**Figure 1. Sticking and panel details.**
5.1.5 Panels—flat hardwood plywood.—The standard thickness of three-ply hardwood plywood panels shall be not less than 3/16 in. thick after sanding, with a tolerance of minus 1/64 in. allowed. They shall conform to Grade 1 (Good) for the species of wood specified, as defined in Commercial Standard 35-49, or later revision.

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

5.1.7 Face veneers.—Face veneers for stiles and rails shall be of the species of wood specified, 3/8 in. thick before sanding.

5.1.8 Measurements.—See paragraph 6.2.

5.2 Solid-Wood-Core Flush Veneered Doors

5.2.1 Core—general.—The core shall be constructed of wood blocks, or a combination of wood strips and blocks, or a combination of wood strips. The wood blocks or strips shall be surfaced two sides, not more than 3 in. wide, and be 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 shall, however, be permitted.) No core shall contain more than one species of wood.

5.2.1.1 Bonded core.—The wood blocks or strips shall be bonded together with a water-resistant adhesive, with the end joints in adjacent rows staggered. After bonding, the cores shall be planed or sanded to a smooth, uniform thickness. Doors with vertical block cores shall have the blocks laid up with the grain running parallel and vertically.

5.2.1.2 Floating core.—Floating core block construction shall consist of vertical blocks or strips interspaced within a stile-and-rail frame and one or more intermediate rails.

5.2.1.3 Bonded stile and rail core.—Stile and rail cores shall be constructed with stile, rail, and panel units, each unit made up entirely of blocks bonded together with a water-resistant adhesive. 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 the blocks shall be laid with the grain running parallel and vertically when the core is to be crossbanded, and parallel and horizontally when no crossbanding is to be used.

5.2.2 Edge strips shall be the same as specified in paragraph 5.1.3, with the added provision that in lieu of ½-in. top and bottom edge strips, the top and bottom of the door shall be given two 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 ½-in. edge strips on the exposed edges of the stiles and rails, but not on the ends of the stiles.

5.2.3 Face veneers and crossbanding.—On 1½-in. and 1¾-in. doors, the face veneers shall be of standard commercial thickness, but not less than 3/8 in. thick before sanding. The crossbanding for a five-ply door shall be not less than ½ in. thick when dried, and of any suitable hardwood species such as maple, birch, gum, ash, elm, basswood, or yellow poplar, at the option of the manufacturer. The combined thickness of veneers that are applied to each side of the core of a seven-ply door shall be not less than ½ in. thick before sanding.
5.2.3.1 When no crossbanding is used the core shall be of stile and rail construction and the face shall be at least 3/8 in. thick before sanding.

5.2.4 Cupboard doors.—The edge strips, 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 3/8 in. thick before sanding. The crossbanding shall be of any suitable hardwood not less than 1/10 in. thick when dried.

5.3 Hollow-Core Flush Veneered Doors

5.3.1 Cores.—The type of hollow-core construction shall be optional with the manufacturer, provided that the inner structure of the core shall be such that it will sufficiently support the outer plywood and afford strength and stability sufficient for normal usage.

5.3.2 Edge strips.—If edge strip is provided on stiles, the minimum width of the edge strip shall be 1/2 in. after trimming. But when so provided, the minimum width of the stiles may be reduced so that the combined width of stile and edge strip shall be not less than 1 1/2 in.

5.3.3 Stiles and rails.—The minimum width of stiles of hollow-core doors shall be 1 1/8 in. (See also par. 5.3.2.) The minimum width of rails shall be 2 1/4 in.

5.3.4 Lock block.—The minimum length of lock block shall be 20 in. The minimum combined width of lock block and its adjacent stile shall be 4 in.

5.3.5 Veneers.—Veneers for crossbanding and faces shall be plywood of two or more plies, with a combined minimum thickness of 3/8 in. before sanding; face veneers shall be of standard commercial thickness, but not less than 3/8 in. before sanding. The faces of all Grade 1 hollow-core doors shall be equal to Grade 1 (Good) for the species of wood specified and as defined in Commercial Standard 35–49, Hardwood Plywood, or later revision. The faces of all Grade 1P hollow-core doors shall be equal to Grade 2 as defined in Commercial Standard 35–49, or later revision.

6. SIZES, DESIGNS, AND LAYOUTS

6.1 Table 1 lists the standard sizes for the various kinds of doors.

6.2 Measurements for stiles, rails, mullions, and muntins given in the layouts herein are over-all (face measurement plus the sticking). A tolerance of 1/8 in. in width shall be permitted. Unless otherwise specified, glass measurements may vary not more than 1/4 in. from those shown in the layouts. (These tolerances allow for variations in practice of the different manufacturers.)
<table>
<thead>
<tr>
<th><strong>INTERIOR PANEL DOORS</strong></th>
<th><strong>EXTERIOR DOORS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A, B, D, F, G, I, L, M, S</strong></td>
<td><strong>A'-A'—One-light doors only</strong></td>
</tr>
<tr>
<td>1' 6&quot; x 6' 6&quot;</td>
<td>5½&quot; stiles, 6½&quot; top rails, 18½&quot; bottom rails</td>
</tr>
<tr>
<td>2' 0&quot; x 6' 0&quot;</td>
<td>2' 8&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>2' 4&quot; x 6' 0&quot;</td>
<td>7&quot; 0&quot;</td>
</tr>
<tr>
<td>2' 6&quot; x 6' 0&quot;</td>
<td>3' 0&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>6' 0&quot;</td>
<td>7&quot; 0&quot;</td>
</tr>
<tr>
<td>6' 4&quot;</td>
<td>3' 4&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>6' 8&quot;</td>
<td>7' 0&quot;</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>1' Interior doors only</td>
</tr>
<tr>
<td>1¾&quot; and 1¾&quot;</td>
<td>5½&quot; stiles, 6½&quot; top rails, 18½&quot; bottom rails</td>
</tr>
<tr>
<td>2' 0&quot; x 6' 6&quot;</td>
<td>2' 6&quot; x 6' 6&quot;</td>
</tr>
<tr>
<td>6' 0&quot;</td>
<td>6' 6&quot;</td>
</tr>
<tr>
<td>2' 4&quot; x 6' 0&quot;</td>
<td>2' 8&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>6' 8&quot;</td>
<td>6' 0&quot;</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>7' 0&quot;</td>
</tr>
<tr>
<td>3' 0&quot; x 6' 8&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>3' 4&quot; x 6' 8&quot;</td>
<td>1¾&quot; only</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>1¾&quot; only</td>
</tr>
</tbody>
</table>

**INTERIOR FRENCH OR CASEMENT DOORS**

<table>
<thead>
<tr>
<th><strong>A-A—Divided-light doors</strong></th>
<th><strong>SIDE LIGHTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1¾&quot; and 1¾&quot;</td>
<td><strong>X-X and Y-Y</strong></td>
</tr>
<tr>
<td>2' 0&quot; x 6' 6&quot;</td>
<td>1' 0&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>6' 0&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>2' 4&quot; x 6' 0&quot;</td>
<td>1' 2&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>6' 8&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>3' 0&quot; x 6' 8&quot;</td>
<td>3' 4&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td><strong>EXTERIOR FLOOD OR CASEMENT DOORS</strong></td>
</tr>
<tr>
<td>2' 0&quot; x 6' 6&quot;</td>
<td><strong>Plain flush or &quot;V&quot; groove—solid core</strong></td>
</tr>
<tr>
<td>6' 0&quot;</td>
<td>1¾&quot;</td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>3' 0&quot; x 6' 8&quot;</td>
</tr>
<tr>
<td>2' 4&quot; x 6' 0&quot;</td>
<td>7' 0&quot;</td>
</tr>
<tr>
<td>6' 8&quot;</td>
<td><strong>INTERIOR FLOOD DOORS</strong></td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td><strong>Plain—solid core or hollow core</strong></td>
</tr>
<tr>
<td>3' 0&quot; x 6' 8&quot;</td>
<td><strong>Plain—solid core or hollow core</strong></td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>3' 4&quot; x 6' 8&quot;</td>
<td><strong>Plain—solid core or hollow core</strong></td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
<tr>
<td>3' 4&quot; x 6' 8&quot;</td>
<td>1¾&quot; and 1¾&quot;</td>
</tr>
</tbody>
</table>
Table 1. Standard sizes—Continued

<table>
<thead>
<tr>
<th>FLUSH TOILET DOORS</th>
<th>FLUSH CUPBOARD DOORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1¼&quot;</strong></td>
<td><strong>3¼&quot; and 1½&quot;</strong></td>
</tr>
<tr>
<td>1' 0&quot; x 1' 6&quot;</td>
<td>1' 0&quot; x 1' 6&quot;</td>
</tr>
<tr>
<td>2' 0&quot; x 5' 0&quot;</td>
<td>1' 4&quot; x 1' 6&quot;</td>
</tr>
<tr>
<td>2' 6&quot; x 4' 0&quot;</td>
<td>1' 8&quot; x 2' 0&quot;</td>
</tr>
<tr>
<td>4' 6&quot;</td>
<td>2' 0&quot;</td>
</tr>
<tr>
<td>5' 0&quot;</td>
<td>2' 0&quot;</td>
</tr>
<tr>
<td>5' 6&quot;</td>
<td>2' 6&quot;</td>
</tr>
<tr>
<td>2' 0&quot; x 4' 0&quot;</td>
<td>2' 6&quot;</td>
</tr>
<tr>
<td>4' 0&quot;</td>
<td>3' 0&quot;</td>
</tr>
<tr>
<td>4' 6&quot;</td>
<td>3' 6&quot;</td>
</tr>
<tr>
<td>5' 0&quot;</td>
<td>4' 0&quot;</td>
</tr>
<tr>
<td>5' 6&quot;</td>
<td>4' 6&quot;</td>
</tr>
<tr>
<td>When so specified, flush toilet doors can be furnished 1¾&quot; thick.</td>
<td></td>
</tr>
</tbody>
</table>

INTERIOR DOORS

<table>
<thead>
<tr>
<th>ONE PANEL</th>
<th>TWO PANEL</th>
</tr>
</thead>
</table>
| Stiles and top rail.......................... 4½"  
Bottom rail...................................... 3½"  
3-ply plywood flat panel. Sticking: Standard.  |
| Stiles and top rail.......................... 4½"  
Lock rail........................................ 9½"  
Bottom rail...................................... 9½"  
3-ply plywood flat panels. Sticking: Standard.  |

Can also be furnished with 5¼" stiles and top rail, 12" bottom rail.

See table 1, page 8, for sizes available.
INTERIOR DOORS—Continued

THREE PANEL

Stiles and top rail: 43 3/8"
Cross rails: 43 3/8"
Bottom rail: 93 6/8"

3-ply plywood flat panels. Sticking: Standard.

FIVE CROSS PANEL

Stiles and top rail: 43 3/8"
Intermediate rails: 43 3/8"
Bottom rail: 93 6/8"

3-ply plywood flat panels. Sticking: Standard.

TWO VERTICAL PANEL

Stiles and top rail: 43 3/8"
Bottom rail: 93 6/8"
Vertical mullion: 43 3/8"

3-ply plywood flat panels. Sticking: Standard.

FOUR PANEL

Stiles and top rail: 43 3/8"
Lock rail: 83 3/8"
Muntins: 43 3/8"
Bottom rail: 93 6/8"

3-ply plywood flat panels. Sticking: Standard.

See table 1, page 8, for sizes available.
SIX PANEL COLONIAL

Stiles and top rail: 4\(\frac{1}{4}\)" face
Lock rail: 8"
Intermediate rails and mullions: 37" face
Bottom rail: 9\(\frac{1}{4}\)
Height of top panels over-all: 7\(\frac{1}{8}\)

3-ply plywood flat panels. Sticking: Standard.

Doors 1'6" are made one panel wide.

EIGHT PANEL

Stiles and top rail: 4\(\frac{1}{4}\)"
Intermediate rails and mullions: 3\(\frac{1}{4}\)"
Bottom rail: 9\(\frac{1}{4}\)

3-ply plywood flat panels. Sticking: Standard.

Doors 1'6" are made one panel wide.

INNER FRAME

Stiles and top rail: 4\(\frac{1}{4}\)" face
Bottom rail: 9\(\frac{1}{4}\)" or 9\(\frac{1}{2}\)" face

3-ply plywood flat panel. Sticking: Standard.

ONE LIGHT

Stiles and top rail: 4\(\frac{1}{4}\)"
Bottom rail: 9\(\frac{1}{4}\)"

Sticking: Standard.

Size of door
2' 0" x 6' 8"
2' 0" x 6' 8"
2' 8" x 6' 8"
3' 0" x 6' 8"

Size of glass
18\(\frac{1}{2}\)" x 66\(\frac{1}{2}\)"
21\(\frac{1}{2}\)" x 66\(\frac{1}{2}\)"
23\(\frac{1}{2}\)" x 66\(\frac{1}{2}\)"
27\(\frac{1}{2}\)" x 66\(\frac{1}{2}\)"

Beads for glass included.

Can also be furnished with 5\(\frac{3}{4}\)" stiles and 18\(\frac{1}{2}\)" bottom rail. (See design A'-A', page 13, exterior doors.) When so specified, doors with light openings will be divided according to purchaser's specifications.

See table 1, page 8, for sizes available.
Exterior Doors

Stiles and top rail.......................... 45 3/8"  
Lock rail.................................  S"  
Bottom rail................................. 95 3/4"  

Sticking: Standard.

Size of door                      Size of glass
2' 8" x 6' 8".......................... 23 1/4" x 40"  
3' 0" x 6' 8".......................... 27 1/4" x 40"  
3' 0" x 7' 0".......................... 27 1/2" x 44"  

Beads for glass included.

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

See table 1, page 8, for sizes available.
K-K

Stiles and top rail........................................... 43/4"
Cross rails.................................................. 43/4"
Muntins....................................................... 43/4"
Bottom rail.................................................. 93/4"

3-ply plywood flat panels. Sticking: Standard.

Size of door          Size of glass
2' 8" x 6' 8"........................................... 231/4" x 34"
3' 0" x 6' 8"........................................... 271/4" x 34"
3' 0" x 7' 0"........................................... 271/4" x 38"

Beads for glass included.

Also supplied with 53/4" stiles and top rail, 53/4" 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........................................... 43/4"
Lock rail................................................... 8"
Top cross rail and mullions............................. 31/4"
Bottom rail.................................................. 93/4"

3-ply plywood flat panels. Sticking: Standard.

Size of door          Size of glass
2' 8" x 6' 8"........................................... 93/4" x 71/4"
3' 0" x 6' 8"........................................... 113/8" x 71/4"
3' 0" x 7' 0"........................................... 113/8" x 73/4"

Beads for glass included.

A'-A'

Stiles......................................................... 51/2"
Top rail..................................................... 63/2"
Bottom rail................................................ 183/2"

Size of door          Size of glass
2' 8" x 6' 8"........................................... 22" x 50"
3' 0" x 6' 8"........................................... 26" x 50"
3' 0" x 7' 0"........................................... 26" x 60"
3' 4" x 6' 8"........................................... 28" x 50"
3' 4" x 7' 0"........................................... 28" x 60"

Doors 3' 4" wide have 63/2" stiles.

Beads for glass included.

This door can also be furnished with divided lights.

See table 1, page 8, for sizes available.
SIDE LIGHTS

Stiles........... 21\(\frac{1}{4}\)"
Top rail........... 6\(\frac{1}{2}\)"
Bottom rail........ 18\(\frac{3}{4}\)"

Stiles........... 21\(\frac{1}{4}\)"
Top rail........... 5\(\frac{1}{2}\)"
Lock rail........... 8"
Bottom rail........ 9\(\frac{3}{4}\)"

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.

See table 1, pages 8 and 9, for sizes available.
7. INSPECTION

7.1 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.

8. LABELING

8.1 In order to assure the purchaser that he is getting hardwood veneered doors of the quality specified, producers may individually, or in concert with their trade associations, grade-mark 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 CS171-50, 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)

8.2 Grade marking.

8.2.1 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 conform to the high standards of quality defined herein.

(a) For hardwood veneered doors of Grade 1:

[Hardwood Grade 1 NWMA 000 Veneered]

(b) For hardwood veneered doors of Grade 1P:

[Hardwood Grade 1P NWMA 000 Veneered]
9. NOMENCLATURE AND DEFINITIONS

9.1 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.

**Hollow core.**—A core assembly of strips or other units of wood, or of other rigid material which supports the outer layers, with intervening hollow cells or spaces.

**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.

**Doors:**

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

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

**Seven-ply flush 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.

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

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

**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 panel.**—A panel made up of core and face veneer.

**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.

**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.**—Made up of core and face veneers (may include crossbanding in flush doors).

10. EFFECTIVE DATE

10.1 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 from December 1, 1950.

EDWIN W. ELY,  
Chief, Commodity Standards Division.
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 171–50, to become effective for new production on December 1, 1950.

Project Manager: J. W. Medley, Commodity Standards Division, Office of Industry and Commerce.
Technica! Adviser: V. B. Phelan, Building Technology Division, National Bureau of Standards.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. 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 Industry and Commerce, U. S. Department of Commerce, which acts as secretary for the committee.

A. C. Hammerand, Farley & Loetscher Manufacturing Co., Dubuque, Iowa (chairman).
Oscar Witt, Roddis Plywood Corp., Marshfield, Wis.
D. C. McCray, Paine Lumber Co., Oshkosh, Wis.
C. K. Paine, Curtis Cos., Inc., Clinton, Iowa.
Carl G. Horn, Iroquois Millwork Corp., P. O. Box 391, Albany 1, N. Y. (representing Woodwork Jobbers Service Bureau).
Roy H. Buell, Buell & Co., P. O. Box 268, Dallas, Tex. (representing Southern Sash & Door Jobbers Assn.).
Harry H. Steidle, Prefabricated Home Manufacturers Institute, 908 Twentieth Street NW., Washington 6, D. C.
Lester T. Burn, Bureau of Indian Affairs, U. S. Department of the Interior, Washington 25, D. C.
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 Industry and Commerce,
U. S. Department of Commerce,
Washington 25, D. C.

Gentlemen:

We believe that the Commercial Standard 171-50 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 articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer (In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer

Organization (Fill in exactly as it should be listed)

Street address

City, zone, and State

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

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

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

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

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

4. Announcement and promulgation.—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.
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 therefrom as they individually deem advisable. It is expected that 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.

ASSOCIATIONS
(General Support)
American Specification Institute, Chicago, Ill.
American Wood Institute, New York, N. Y.
Associated General Contractors of America, Inc.
Carolina Lumber & Building Supply Association, Charlotte, N. C.
Fir Door Institute, Tacoma, Wash.
Greater New York Lumber Industries, Inc, New York, N. Y.
Mississippi Retail Lumber Dealers Association, Inc., Jackson, Miss.
National Hardwood Lumber Association, Chicago, Ill.
National Woodwork Manufacturers Association, Chicago, Ill.
Prefabricated Home Manufacturers’ Institute, Washington, D. C.
Southern Plywood Manufacturers Association, Atlanta, Ga.

FIRMS AND OTHER INTERESTS
Adams, Franklin O., Tampa, Fla.
Adams-Rogers Co., Indianapolis, Ind.
Algoma Plywood & Veneer Co., Algoma, Wis.
American Sash & Door Co., Kansas City, Mo.
Andrews, Jones, Bisce & Goodsell, Boston, Mass.
Anson & Gilkey Co., Merrill, Wis.
Associated Door & Plywood Co., Chicago, Ill.
Athens Flooring Co., Athens, Ohio.
Baxter, C. B., & Co., Kansas City, Mo.
Beasley & Sons Co., Nashville, Tenn.
Bell, Edo J., Chicago (General support.)
Blomberg, Karl E., Brooklyn, N. Y. (General support.)
Bohlopp Lumber Co., Inc., Los Angeles, Calif.
Bozeman & Cason, Inc., Harrison, N. J.
Brust & Brust, Milwaukee, Wis.
Buell & Co., Dallas, Tex.
Buffalo Manufacturing Co. (of Tacoma, Wash.), Fort Worth, Tex.
Burritt, A. W., Co., Bridgeport, Conn.
California Door Company of Los Angeles, The, Los Angeles, Calif.
Cameron Lumber Co., Inc., Newburgh, N. Y.
Cameron, Wm., & Co., Waco, Tex.
Camlet, J. Thomas, Passaic, N. J.
Cannon & Mullen, Salt Lake City, Utah.
Carl, A., & Sons Co., Dubuque, Iowa.
Cellar Lumber Co., Westerville, Ohio.
Cellarius, Charles F., Cincinnati, Ohio.
Chicago & Riverdale Lumber Co., Chicago, Ill.
Cincinnati, City of, Department of Purchasing, Cincinnati, Ohio.
Cincinnati Sash & Door Co., Cincinnati, Ohio.
Coates, Henry V., & Associates, New York, N. Y.
Conrad & Cummings, Associated Architects, Birmingham, N. Y.
Cross, Austin & Irland Lumber Co., Brooklyn, N. Y.
Curtis Cos., Inc., Clinton and Sioux City, Iowa; Chicago, Ill.; Wausau, Wis.; Lincoln, Nebr.; Topeka, Kan.; Minneapolis, Minn.
Dakota Sash & Door Co., Aberdeen, S. Dak.
Dayton Sash & Door Co., Dayton, Ohio.
Deats Sash & Door Co., Los Angeles, Calif.
DeJarnette, Charles W., Des Moines, Iowa (General support.)
Detroit, City of, City Engineer’s Office, Detroit, Mich.
Domlin Co., Inc., St. Cloud, Minn.
Dykes Lumber Co., New York, N. Y.
Edwards Sash Door & Lumber Co., Tampa, Fla.
Estes Lumber Co., Birmingham, Ala.
Farley & Loetscher Manufacturing Co., Dubuque, Iowa.
Flanagan, Eric G., Henderson, N. C.
Fort Wayne Builders’ Supply Co., Fort Wayne, Ind.
General Millwork Corp., Utica, N. Y.
General Plywood Corp., Louisville, Ky.
Gibson Door Co., Inc., Utica, N. Y.
Goshen Sash & Door Co., Goshen, Ind.
H & S Lumber Co., Charlotte, N. C.
Hallack & Howard Lumber Co., Denver, Colo.
Harbor Plywood Corp. of California, San Francisco, Calif.
Harbor Sales Co., Inc., Baltimore, Md.
Harbor Sales Co., Washington, D. C.
Hardwood Producers, Wis.
Hodgdon, Charles, San Gabriel, Calif.
Houston-Ready-Cut House Co., Inc., Houston, Tex.
Houston Sash & Door Co., Houston, Tex.
Huttig Manufacturing Co., Muscatine, Iowa.
Huttig Sash & Door Co., St. Louis, Mo.
Indiana Lumber & Manufacturing Co., Inc., South Bend, Ind.
Interstate Sash & Door Co., Canton, Mo.
Iowa City Sash & Door Co., Pittsburgh, Pa.
Jacksonville Sash & Door Co., Jacksonville, Fla.
Johnson & Wimsatt, Inc., White Plains, N. Y.
Koehl, John W., & Son, Inc., Los Angeles, Calif.
Latenser, John, & Sons, Omaha, Nebr.
Law, Law, Potter & Nystrom, Madison, Wis.
Loeb, Laurence M., White Plains, N. Y.
Loehrer & Burch Manufacturing Co., Des Moines, Iowa.
Los Angeles, City of, Bureau of Public Buildings, Los Angeles, Calif.
Lumbermen’s Credit & Warehouse Co., Kalamazoo, Mich.
Mahoney Sash & Door Co., Canton, Ohio.
Markland, M. B., Contracting Co., Atlantic City, N. J.
Martin, Edgar, Chicago, Ill.
Martin Millwork Co., Raleigh, N. C.
Mengel Co., Louisville, Ky.
Merrill Lumber Co., Reading, Pa.
Metropolitan Millwork Co., Brooklyn, N. Y.
Miller & Vrydagh, Terre Haute, Ind.
Milwaukee, City of, Bureau of Bridges & Buildings, Milwaukee, Wis.
Minnesota Highway Department, St. Paul, Minn.
Monsanto Chemical Co., Springfield, Mass.
Mooser, William, San Francisco, Calif.
Morgan Co., Oshkosh, Wis.
Minnesota Millwork Co., Baltimore, Md.
Morgan Sash & Door Co., Chicago, Ill.
Morrison-Merrill & Co., Salt Lake City, Utah
Muhlenberg Bros., Reading, Pa.
Mutual Millwork Co., Orlando, Fla.
National Plywoods, Inc., Chicago, Ill.
New Rochelle Coal & Lumber Co., New Rochelle, N. Y.
Northern Sash & Door Co., Hawkins, Wis.
Northern Sash & Door Manufacturing Co., Nor-
wood, Ohio
Nuremberg, W. S., Fort Worth, Tex.
Oklahoma Sash & Door Co., Oklahoma City, Okla.
Pacific Manufacturing Co., Santa Clara, Calif.
Paducah Sash & Door Co., Paducah, Ky.
Paine Lumber Co., Ltd., Oshkosh, Wis.
Patten-Blinn Lumber Co., Los Angeles, Calif.
Pease Woodwork Co., Cincinnati, Ohio
Plywood-Flats Corp., Hampton, S. C.
Radford & Sanders, Inc., Baltimore, Md.
Ready Hung Door Corp., Fort Worth, Tex.
Ready Hung Door Manufacturing Corp. of Texas,
Dallas, Tex.
Rosenkoff, Abraham, New York, N. Y.
Roach & Musser Co., Muscatine, Iowa
Rock Island Millwork Co., Rock Island, Ill.
Rockwell Manufacturing Co., of Wisconsin, Ran-
dolph, Wis.
Rodds Plywood Corp., Marshall, Wis.
Rondale, C. R., Inc., South Kearny, N. J.
Segerke & Kohlhaas Co., La Crosse, Wis.
Seguin Lumber & Millwork Co., Fostoria, Ohio
Shenk, Henry, Co., Erie, Pa.
Silbermegl, Geo., & Sons Co., Wausau, Wis.

Smith, Allen A., Co., Toledo, Ohio
Sothman Co., Grand Island, Nebr.
Southern Pacific Co., San Francisco, Calif.
Southwestern Sash & Door Co., Joplin, Mo.
Standard Lumber & Supply Co., Fort Wayne, Ind.
Staub & Radle Bros., Tex.
Stoetzl, Ralph, Chicago, Ill.
Summers Hardware & Supply Co., Johnson City, Ten.
Sweetwater Sash & Door Co., Sweetwater, Tex.
Taylor, Ellery Kirke, Haddendfield, N. J.
Taylor Sash & Door Co., Pensacola, Fla.
Taylor Sash, Door & Class Co., Detroit, Mich.
Texas Sash & Door Co., Fort Worth, Tex.
Thorne, Henry Calder, Ithaca, N. Y.
Thorn-Martins Co., Columbus, Ohio
Timberline, Inc., Kansas City, Mo.
Trexler Lumber Co., Allentown, Pa.

Tyson Mill & Builders Supply Co., Orlando, Fla.
United States Plywood Corp., New York, N. Y.
Vestor Supply Co., Stevens Point, Wis.
Wanke Panel Co., Portland, Oreg.
Washington Woodworking Co., Inc., Washington,
D. C.
Watertown Sash & Door Co., Watertown, S. Dak.
Welch, Currell E., Huntington, N. Y.
Western Hardwood Lumber Co., Los Angeles, Calif.
Whissel, L. N., Lumber Co., Inc., Buffalo, N. Y.
Wolverine Shingle & Lumber Co., Detroit, Mich.
Zimmerman, A. C., Los Angeles, Calif.

UNITED STATES GOVERNMENT
Agriculture, U. S. Department of, Division of Pur-
chase, Sales and Traffic, Washington, D. C.
Army, Department of the, Washington, D. C.
Interior, U. S. Department of, Bureau of Indian
Affairs, Washington, D. C.

COMMERCIAL STANDARDS

CS No.
0-40. Commercial standards and their value to
business.
1-42. Clinical thermometers.
2-30. Mopsticks.
3-46. Stoddard solvent.
4-39. Seamless porcelain (all-clay) plumbing fixtures.
5-46. Pipe nipples; brass, copper, steel and
wrought-iron.
6-31. Wrought-iron pipe nipples. Superseded by
C54-46.
7-29. Standard weight malleable iron or steel
screwed unions.
8-41. Gage blanks.
9-33. Builders' template hardware.
11-41. Moisture regains of cotton yarns.
13-44. Dress patterns.
14-51. Boys' sport and dress shirt (woven fabrics)
sizes.
15-46. Men's pajama sizes (made from woven fabrics).
16-29. Weight of.
17-47. Diamond core drill fittings.
18-29. Hickory golf shafts.
19-32. Foundry patterns of wood.
20-49. Vitreous china plumbing fixtures.
21-39. Interchangeable ground-glass joints, stop-
cocks, and stoppers.
22-40. Builders' hardware (nottemplate).
23-30. Feldspar.
24-43. Screw threads and tap-drill sizes.
25-30. Special screw threads. Superseded by
C294-48.
26-30. Aromatic red cedar closet lining.
27-36. Mirrors.
30-31. (Withdrawn.)
31-38. Wood shingles.
32-31. Cotton cloth for rubber and pyroxylin coat-
ing.
33-43. Knit underwear (exclusive of rayon).

C8 No.
35-49. Hardwood plywood.
36-30. Forfogtic wire gauge.
37-31. Steel plate bones and screws.
38-32. Hospital rubber sheeting.
39-37. (Withdrawn.)
40-32. Surgeons' rubber gloves.
41-32. Surgeons' latex gloves.
42-49. Structural fiber insulating board.
43-42. Grade of sulfonated oils.
44-32. Apple wraps.
46-40. Holly, birch and sizes.
47-34. Marking of gold-filled and rolled-gold-plat-
articles other than watchcases.
48-40. Refractory materials for Pennsylvania anthra-
cite (underfeed type).
49-34. Chip board, laminated chip board, and mis-
cellaneous boards for bookbinding pur-
poses.
50-34. Binders board for bookbinding and other
purposes.
51-35. Marking articles made of silver in combina-
tion 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 institutions.
55-35. mattresses for institutions.
56-49. Oak flooring.
57-40. Book cloths, buckram, and impregnated
fabrics for bookbinding purposes except
library bindings.
58-36. Woven elastic fabrics for use in overalls
(overall elastic webbing).
59-44. Textiles—testing and reporting.
61-37. Wood-slat venetian blinds.
63-38. Colors for bathroom accessories.
64-37. Walnut veneers.
65-48. Methods of analysis and of reporting fiber
composition of textile products.
CS No.
6-38. 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.
70-41. Phenolic disinfectant (emulsifying type) (published with CS71-41).
71-41. Phenolic disinfectant (soluble type) (published with CS70-41).
72-38. Household insecticide (liquid spray type).
75-42. Automatic mechanical draft oil burners designed for domestic installations.
77-48. Enameled cast-iron plumbing fixtures.
79-40. Blown, drawn, and dropped lenses for sun glasses (published with CS78-40).
80-41. Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).
81-41. Adverse-weather lamps for vehicles (after market).
82-41. Interior-mounted spotlight lamps for vehicles (after market).
83-41. Clearance, marker, and identification lamps for vehicles (after market).
84-41. Electric tail lamps for vehicles (after market).
85-41. Electric license-plate lamps for vehicles (after market).
86-41. Electric stop lamps for vehicles (after market).
87-41. Red electric warning lanterns.
88-41. Liquid burning flares.
89-40. Hardwood staff treads and risers.
90-49. Power cranes and shovels.
91-41. Factory-fitted Douglas fir entrance doors.
92-41. Cedar, Cypress, and redwood tank stock lumber.
93-50. Portable electric drills (exclusive of high frequency).
94-41. Calking lead.
95-41. Lead pipe.
96-41. Lead traps and bends.
97-42. Electric supplementary driving and passing lamps for vehicles (after market).
98-42. Electric vehicles (after market).
99-42. Artists' oil paints.
99-42. Gas floor furnaces—gravity circulating type.
100-47. Porcelain-enamed steel utensils.
101-45. Fluenc-connected oil-burning space heaters equipped with vaporizing pot-type burners.
102-5. (Reserved for "Diesel and fuel-oil engines").
103-48. Rayon jacquard velour (with or without other decorative yarn).
104-49. Warm-air furnaces equipped with vaporizing type oil burners.
106-44. Boys' pajama sizes (woven fabrics).
107-45. (Withdrawn.)
108-43. Treadling automobile and truck tires.
110-43. Fire repairs—vulcanized (passenger, truck, and bus tires).
111-43. Earthenware (vitreous-glazed) plumbing fixtures.
112-43. Homogeneous fiber wallboard.
113-51. Oil-burning floor furnaces equipped with vaporizing pot-type burners.
114-43. Hospital sheeting for mattress protection.
115-44. Porcelain-enamed tanks for domestic use.
116-44. Bituminized-fibre drain and sewer pipe.
117-49. Mineral wool insulation for heated industrial equipment.
118-44. Marking of jewelry and novelties of silver.
119-43. Dial indicators (for linear measure-

1 Where "(E)" precedes the CS number, it indicates an emergency commercial standard, drafted under war conditions with a view toward early revision.
U. S. DEPARTMENT OF COMMERCE
Field Service

Albuquerque, N. Mex.
203 W. Gold Ave.

Atlanta 3, Ga.
50 Whitehall St. SW.

Baltimore 2, Md.
103 S. Gay St.

Boston 9, Mass.
1800 Customhouse

Buffalo 3, N. Y.
117 Ellicott St.

Butte, Mont.
14 W. Granite St.

Charleston 3, S. C.
18 Broad St.

Cheyenne, Wyo.
206 Federal Office Bldg.

Chicago 4, Ill.
332 S. Michigan Ave.

Cincinnati 2, Ohio
105 W. Fourth St.

Cleveland 14, Ohio
925 Euclid Ave.

Dallas 2, Tex.
1114 Commerce St.

Denver 2, Colo.
828 Seventeenth St.

Detroit 26, Mich.
230 W. Fort St.

El Paso, Tex.
206 U. S. Courthouse Bldg.

Hartford 1, Conn.
135 High St.

Houston 14, Tex.
602 Federal Office Bldg.

Jacksonville 1, Fla.
311 W. Monroe St.

Kansas City 6, Mo.
911 Walnut St.

Los Angeles 12, Calif.
312 North Spring St.

Louisville 2, Ky.
631 Federal Bldg.

Memphis 3, Tenn.
229 Federal Bldg.

Miami 32, Fla.
36 N.E. First St.

Milwaukee 2, Wis.
517 E. Wisconsin Ave.

Minneapolis 1, Minn.
401 Second Ave. South

Mobile 10, Ala.
109-13 St. Joseph St.

New Orleans 12, La.
333 St. Charles Ave.

New York 4, N. Y.
42 Broadway

Oklahoma City 2, Okla.
102 NW. Third St.

Omaha 2, Nebr.
1319 Farnam St.

Philadelphia 7, Pa.
1015 Chestnut St.

Phoenix, Ariz.
234 N. Central Ave.

Pittsburgh 19, Pa.
700 Grant St.

Portland 4, Oreg.
520 S.W. Morrison St.

Providence 3, R. I.
24 Weybossett St.

Reno, Nev.
118 W. Second St.

Richmond 19, Va.
801 E. Broad St.

St. Louis 1, Mo.
1114 Market St.

Salt Lake City 1, Utah
350 S. Main St.

San Francisco 11, Calif.
555 Battery St.

Savannah, Ga.
125-29 Bull St.

Seattle 4, Wash.
909 First Ave.

For local telephone listing, consult section devoted to U. S. Government