

U.S. Department of Commerce  
National Institute of Standards and Technology (NIST)  
(formerly National Bureau of Standards-NBS)

**Product Standard PS38-70**  
**Steel Bi-fold Closet Door Units, Frames and Trim**

Product Standard PSS38-70, Steel Bi-Fold Closet Door Units, Frames and Trim, was withdrawn by the U.S. Department of Commerce in August 1980.

\*\*\*\*\*

The following organization can provide guidance and assistance for additional information on the subject (such as: 106, Recommended Standard Door Type Nomenclature; A123.1 Standard Nomenclature for Steel Doors and Steel Door Frames and, on others), contact:

**Steel Door Institute (SDI)**  
30200 Detroit Road  
Cleveland, Ohio, 44145-1967, USA  
Telephone: (440) 899-0010  
Fax: (440) 892-1404

8.d.(2) of the OMB Circular that the meeting will be concerned with matters of the type described in 5 U.S.C. 552(b)(1). This determination was made pursuant to a delegation of authority from the Office of Management and Budget dated June 25, 1973, issued under the authority of Executive Order 11686 dated October 7, 1972 and continued by Executive Order 11769 dated February 21, 1974.

Dated: August 14, 1980.

Walter L. Baumann,  
Acting Advisory Committee, Management  
Officer.

[FR Doc. 80-25238 Filed 8-19-80; 8:45 am]  
BILLING CODE 6320-33-M

## CIVIL AERONAUTICS BOARD

(Docket 34141)

### Application of Trans-Panama, S.A.; Hearing

Notice is hereby given pursuant to the Federal Aviation Act of 1958, as amended, that a hearing in the above-entitled proceeding is assigned to be held on October 7, 1980, at 9:30 a.m. (local time), in Room 1003, Hearing Room A, North Universal Building, 1875 Connecticut Avenue, N.W., Washington, D.C., before the undersigned administrative law judge.

Dated at Washington, D.C., August 14, 1980.

Elias C. Rodriguez,  
Administrative Law Judge.

[FR Doc. 80-25231 Filed 8-19-80; 8:45 am]  
BILLING CODE 6320-01-M

## DEPARTMENT OF COMMERCE

### Maritime Administration

### National Oceanic and Atmospheric Administration

## DEPARTMENT OF THE TREASURY

### Internal Revenue Service

### Merchant Marine and Fisheries Capital Construction Funds; Applicable Rates of Interest on Nonqualified Withdrawals

Under the authority in section 607(h)(4) of the Merchant Marine Act, 1936, (46 U.S.C. 1101), as amended by section 27 of the Merchant Marine Act of 1970 (44 Stat. 1031), we hereby determine and announce that the applicable rate of interest on the amount of additional tax attributable to any nonqualified withdrawals from a capital

construction fund established under section 607 of the Act shall be 10.36 percent, with respect to nonqualified withdrawals made in the taxable year beginning in 1980.

The determination of the applicable rate of interest with respect to nonqualified withdrawals was computed according to the joint regulations issued under the Act (46 CFR Part 391. § 391.7(e)(2)(ii)) by multiplying 8 percent by the ratio which (a) the average yield on 5-year Treasury securities for the calendar year immediately preceding the beginning of such taxable year, bears to (b) the average yield on 5-year Treasury securities for the calendar year 1970. The applicable rate so determined was computed to the nearest one-hundredth of 1 percent.

Dated: August 11, 1980.

Samuel B. Nemirow,  
Assistant Secretary for Maritime Affairs.  
Richard A. Frank,  
Administrator, National Oceanic and  
Atmospheric Administration.  
Donald C. Lubick,  
Assistant Secretary of the Treasury.

[FR Doc. 80-24980 Filed 8-19-80; 8:45 am]  
BILLING CODE 3510-15-M

## DEPARTMENT OF COMMERCE

### International Trade Administration

### Consolidated Decision on Applications for Duty-Free Entry of Scientific Articles

#### Correction

In FR Doc. 80-24104, at page 53192, in the issue of Monday, August 11, 1980, on page 53193 in the middle column, the sixth full paragraph now reading "Docket No.: 79-00062." is corrected to read "Docket No.: 80-00062."

BILLING CODE 1505-01-M

### National Bureau of Standards

### Status Report on Withdrawal of Voluntary Product Standards

AGENCY: Department of Commerce,  
National Bureau of Standards.

ACTION: Maintenance, Retention,  
Replacement, and Withdrawal of certain  
Voluntary Product Standards.

On June 19, 1980, the Department of Commerce (Department) announced in the Federal Register (45 FR 41475-6) the withdrawal, effective August 18, 1980, of 80 documents classified as Voluntary Product Standards. The withdrawal announcement was made in accordance with a revisions to the Procedures for

the Development of Voluntary Product Standards (15 CFR Part 10) which was announced in a separate notice in that same issue of the Federal Register (45 FR 41401-06) and which went into effect on June 19, 1980. The revised Procedures specify six criteria which must be met for the department to sponsor the development or maintenance of a standard. Section 10.13 of the revised Procedures provided that within the period ending August 18, 1980, interested parties could submit a request to the director of the National Bureau of Standards (NBS) to retain a particular standard or standards in accordance with those specified criteria. Several such requests have been received, and determinations have been reached on those requests as indicated below.

Based on proposals from the proponent organizations identified after the following titles, the following product standards will continue to be sponsored by the Department:

PS 1-74, Construction and Industrial Plywood; American Plywood Association  
PS 20-70, American softwood Lumber Standard; American Lumber Standards Committee  
PS 56-73, Structural Glued Laminated Timber; American Institute of Timber Construction  
PS 73-77, Carbonated Soft Drink Bottles; Glass Packaging Institute

Based on documented activity within a private standards-writing organization, the following standards will be retained by NBS for the stated periods of time to permit the orderly transfer of sponsorship of such standards from the Department to the identified organizations:

PS 13-69 Uncorded Slab Urethane Foam for Bedding and Furniture cushioning; American society for Testing and Materials; 24 months  
PS 15-68, Custom Contact-Molded Reinforced-Polyester-Chemical-Resistant Process Equipment; Society of the Plastics Industry; 12 months  
PS 17-68, Polyethylene-sheeting (construction, Industrial, and Agricultural Applications); Society of the Plastics Industry; 12 months  
PS 23-70, Horticultural Grade Perlite; the Perlite Institute; 12 months  
PS 24-70, Melamine Dinnerware (Alpha-Cellulose Filled) for Household Use; Society of the Plastics Industry; 12 months  
PS 25-70, Heavy-Duty Alpha-Cellulose-Filled Melamine Tableware; Society of the Plastics Industry; 12 months  
PS 27-70, Mosaic-Parquet Hardwood Slat Flooring; American Parquet Association; 6 months  
PS 29-70, Plastic Heat-Shrinkable Film; Society of the Plastics Industry; 12 months  
PS 30-70, School Chalk; the Crayon, Water Color and Craft Institute, inc.; 18 months  
PS 31-70, Polystyrene Plastic Sheet; Society of the Plastics Industry; 12 months

PS 34-70, Fluorinated Ethylene-Propylene (FEP) Plastic Lined Steel Pipe and Fittings; Society of the Plastics Industry; 12 months

PS 36-70, Body Measurements for the Sizing of Boys' Apparel; Mail Order Association of America; 24 months

PS 42-70, Body Measurements for the Sizing of Women's Patterns and Apparel; Mail Order Association of America; 24 months

PS 45-71, Body Measurements for the Sizing of Apparel for Young Men (Students); Mail Order Association of America; 24 months

PS 46-71, Flame-Resistant Paper and Paperboard; American Society for Testing and Materials; 18 months

PS 51-71, Hardwood and Decorative Plywood; Hardwood Plywood Manufacturers Association; 24 months

PS 52-71, Polytetrafluoroethylene (PTFE) Plastic; Society of the Plastics Industry; 12 months

PS 53-72, Glass-Fiber Reinforced Polyester Structural Plastic Panels; Society of the Plastics Industry; 12 months

PS 54-72, Body Measurements for the Sizing of Girls' Apparel; Mail Order Association of America; 24 months

PS 57-73, Cellulosic Fiber Insulation Board; American Hardboard Association; 6 months

PS 58-73, Basic Hardboard; American Hardboard Association; 6 months

PS 59-73, Prefinished Hardboard Paneling; American Hardboard Association; 6 months

PS 60-73, Hardboard Siding; American Hardboard Association; 6 months

PS 62-74, Grading of Diamond Powder in Sub-Sieve Sizes; Industrial Diamond Association of America; 12 months

PS 63-75, Latex Foam Mattresses for Hospitals; American Society for Testing and Materials; 24 months

PS 64-75, School Paste; the Crayon, Water Color and Craft Institute, Inc.; 18 months

PS 65-75, Paints and Inks for Art Education in Schools; The Crayon, Water Color and Craft Institute, Inc.; 18 months

PS 67-76, Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watchcases; Jewelers Vigilance Committee; 36 months

PS 68-76, Marking of Articles Made of Silver in Combination with Gold; Jewelers Vigilance Committee; 36 months

PS 69-76, Marking of Articles Made Wholly or in Part of Platinum; Jewelers Vigilance Committee; 36 months

PS 70-76, Marking of Articles Made of Karat Gold; Jewelers Vigilance Committee; 36 months

PS 71-76, Marking of Jewelry and Novelties of Silver; Jewelers Vigilance Committee; 36 months

CS 98-82, Artists' Oil Paints; Artists Equity Association, Inc.; 18 months

CS 130-80, Color Materials for Art Education in Schools; The Crayon, Water Color and Craft Institute, Inc.; 18 months

CS 138-85, Insect Wire Screening; Insect Screening Weavers Association; 12 months

CS 151-80, Body Measurements for the Sizing of Apparel for Infants, Babies, Toddlers and Children (for the Knit Underwear Industry); Mail Order Association of America; 24 months

CS 192-83, General Purpose Vinyl Plastic Film; Society of the Plastics Industry; 12 months

CS 201-85, Rigid Polyvinyl Chloride Sheets; Society of the Plastics Industry; 12 months

CS 227-80, Polyethylene Film; Society of the Plastics Industry; 12 months

CS 245-82, Vinyl-Metal Laminates; Society of the Plastics Industry; 12 months

CS 257-83, TFE-Fluorocarbon (Polytetrafluoroethylene) Resin Molded Basic Shapes; Society of the Plastics Industry; 12 months

CS 268-85, Hide Trim Pattern for Domestic Cattlehides; National Hide Association; 12 months

CS 274-88, TFE-Fluorocarbon (Polytetrafluoroethylene) Resin Sintered Thin Coatings for Dry Film Lubrication; Society of the Plastics Industry; 12 months

R 2-82, Bedding Products and Components; National Association of Bedding Manufacturers; 12 months

R 192-83, Crayons and Related Art Materials for School Use (Types, Sizes, Packages, and Colors); the Crayon, Water Color and Craft Institute, Inc.; 18 months

The following standards have been replaced by standards published by private standards-writing organizations and, therefore, Department of Commerce sponsorship is no longer needed for them:

PS 26-70, Rigid Poly (Vinyl Chloride) (PVC) Profile Extrusions replaced by ASTM D 3678-78, Specification for Rigid Poly (Vinyl Chloride) (PVC) Profile Extrusions

PS 43-71, Fluorinated Ethylene-Propylene (FEP) Plastic Tubing replaced by ASTM D 3298-74, Specification for FEP-Fluorocarbon Resin Tubing

PS 47-71, Heat-Shrinkable Fluorocarbon Plastic Tubing replaced by ASTM D 2902-75, Specification for Fluorocarbon Resin Heat-Shrinkable Tubing

PS 55-72, Rigid Poly (Vinyl Chloride) (PVC) Plastic Siding replaced by ASTM D 3679-79 Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding

CS 11-83, Moisture Regain of Cotton Yarns replaced by ASTM D 1909-77 Standard Table of Commercial Moisture Regains for Textile Fibers and ASTM D 2494-74 Standard Method of Test for Commercial Weight of a Shipment of Yarn or Man-Made Staple Fiber

CS 21-88, Interchangeable Taper-Ground Joints, Stopcocks, Stoppers, and Spherical-Ground Joints replaced by ASTM E 676-79 Standard Specification for Interchangeable Stopcocks and Stoppers, ASTM E 676-79 Standard Specification for Interchangeable Taper-Ground Joints, and ASTM E 677-79 Standard Specification for Interchangeable Spherical-Ground Joints

CS 75-80, Automatic Mechanical-Draft Oil Burners Designed for Domestic Installations replaced by ANSI Z 91.2-1978 Performance Requirements for Automatic Pressure Atomizing Oil Burners of the Mechanical-Draft Type

CS 191-83, Flammability of Clothing Textiles replaced by ASTM D 1230-81 (1972) Test for Flammability of Clothing Textiles

CS 202-88, Industrial Lifts and Hinged Loading Ramps replaced by ANSI MH14.1-1978 Industrial Loading Dockboards (Ramps)

CS 209-87, Vinyl Chloride Plastics Garden Hose replaced by ASTM D 3901-80 Standard Consumer Product Specification for Garden Hose

CS 236-86, Mat-Formed Wood Particleboard replaced by ANSI A 208.1-1979 Mat-Formed Particleboard

In the absence of any request for retention or maintenance, the following standards will be withdrawn, as previously announced, on August 18, 1980:

PS 4-68, Standard Stock Light-Duty 1-3/8-and 1-3/4-inch Thick Flush-type Interior Steel Doors and Frames

PS 6-66, Trim for Water-Closet Bowls, Tanks and Urinals (Dimensional Standards)

PS 28-70, Glass Stopcocks with Polytetrafluoroethylene (PTFE) Plugs

PS 38-70, Steel Bi-fold Closet Door Units, Frames, and Trim

PS 40-70, Package Quantities of Green Olives

PS 41-70, Package Quantities of Instant Mashed Potatoes

PS 44-71, Paper Ice Bag Sizes

PS 48-71, Package Quantities of Cubed, Sliced, Crushed, and Block Ice

PS 49-71, Portable Picnic Coolers

PS 50-71, Package Quantities of Toothpaste

CS 5-65, Pipe Nipples; Brass, Copper, Steel, and Wrought Iron

CS 46-65, Hosiery Lengths and Sizes Excluding Women's

CS 234-81, Measurements for Stretch Socks and Anklets

CS 242-82, Standard Stock Commercial 1-3/4-Inch Thick Steel Doors and Frames

CS 289-85, Aluminum Alloy Chain Link Fencing

R 46-85, Tissue Wrapping Paper

R 222-48, Hot-Rolled Carbon Steel Bars and Bar-Size Shapes

R 284-81, Standard Sizes of Oil-Hardenable Flat, Ground Tool Steel Stock

In accordance with section 10.1(e) of the revised Procedures for the Development of Voluntary Product Standards and by agreement with the Consumer Product Safety Commission, the Department will retain sponsorship of the following two Product Standards until such time as arrangements for their sponsorship by a private standards-writing organization can be made:

PS 66-75, Safety Requirements for Home Playground Equipment

PS 72-76, Toy Safety

For further information contact: James E. French, Office of Engineering Standards, National Bureau of Standards, Washington, D.C. 20234, Telephone: (301) 921-3272.

*Final copy*

A UNITED STATES  
DEPARTMENT OF  
COMMERCE  
PUBLICATION



DO NOT REMOVE  
~~REPRODUCTION~~

# NBS Voluntary Product Standard

PS 38-70

# WITHDRAWN

U.S.  
DEPARTMENT  
OF  
COMMERCE  
  
National  
Bureau  
of Standards

**UNITED STATES DEPARTMENT OF COMMERCE**

**Maurice H. Stans, Secretary**

**NATIONAL BUREAU OF STANDARDS**

**Lewis M. Branscomb, Director**

**Voluntary Product Standard**

**PS 38-70**

**Steel Bi-Fold Closet Door Units,  
Frames, and Trim**

Technical Standards Coordinator: C. W. Devereux

**Abstract**

This Voluntary Product Standard covers sizes, types, materials, construction, hardware, and finishing of steel bi-fold closet door units and frames intended to be stock items not subject to variations according to the customer's special requirements. Methods of marking and labeling are included so that products which comply with the standard may be clearly identified. Provisions for the erection of doors, frames, and accessories are not included in the standard, but certain recommendations for storage and erection as generally endorsed by the manufacturers are given for information and guidance.

Key words: Bi-fold doors, steel; closet doors, steel bi-fold; doors, steel bi-fold; steel bi-fold doors.

Nat. Bur. Stand. (U.S.), Prod. Stand. 38-70, 12 pages (May 1971)  
CODEN: XNPSA

## Contents

	Page
1. Purpose -----	1
2. Scope and Classification -----	1
2.1. Scope -----	1
2.2. Classification -----	1
3. Requirements -----	1
3.1. General -----	1
3.2. Standard opening sizes -----	1
3.2.1. Multiple openings -----	2
3.2.2. Method of measuring openings -----	2
3.3. Door sizes -----	2
3.4. Material -----	2
3.5. Door designs and construction -----	3
3.6. Hardware -----	3
3.6.1. Suspension system -----	3
3.6.2. Hinges -----	3
3.6.3. Door knobs -----	3
3.7. Frames -----	4
3.7.1. Knock-down type -----	4
3.7.2. Welded type -----	4
3.7.3. Anchors -----	4
3.8. Trim -----	4
3.9. Finishing -----	4
3.10. Workmanship -----	4
4. Identification -----	4
5. Effective Date -----	5
6. History of Project -----	5
7. Standing Committee -----	5
8. Acceptors -----	6
Appendix -----	9

## VOLUNTARY PRODUCT STANDARDS

*Voluntary Product Standards* are standards developed under procedures established by the Department of Commerce (15 CFR Part 10, as amended, May 28, 1970). The standards may include (1) dimensional requirements for standard sizes and types of various products, (2) technical requirements, and (3) methods of testing, grading, and marking. The objective of a *Voluntary Product Standard* is to establish requirements which are in accordance with the principal demands of the industry and, at the same time, are not contrary to the public interest.

### Development of a VOLUNTARY PRODUCT STANDARD

The Office of Engineering Standards Services of the National Bureau of Standards has been assigned by the Department of Commerce the responsibility to work closely with scientific and trade associations and organizations, business firms, testing laboratories, and other appropriate groups to develop *Voluntary Product Standards*. The Bureau has the following role in the development process: It (1) provides editorial assistance in the preparation of the standard; (2) supplies such assistance and review as is required to assure the technical soundness of the standard; (3) acts as an unbiased coordinator in the development of the standard; (4) sees that the standard is representative of the views of producers, distributors, and users or consumers; (5) seeks satisfactory adjustment of valid points of disagreement; (6) determines the compliance with the criteria established in the Department's procedures cited above; and (7) publishes the standard.

Industry customarily (1) initiates and participates in the development of a standard; (2) provides technical counsel on a standard; and (3) promotes the use of, and support for, the standard. (A group interested in developing a *Voluntary Product Standard* may submit a written request to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234.)

A draft of a proposed standard is developed in consultation with interested trade groups. Subsequently, a Standard Review Committee is established to review the proposed standard. The committee, appropriately balanced, includes qualified representatives of producers, distributors, and users or consumers of the product being standardized. When the committee approves a proposal, copies are distributed for industry consideration and acceptance. When the acceptances show general industry agreement, and when there is no substantive objection deemed valid by the Bureau, the Bureau announces approval of the *Voluntary Product Standard* and proceeds with its publication.

### Use of a VOLUNTARY PRODUCT STANDARD

The adoption and use of a *Voluntary Product Standard* is completely voluntary. *Voluntary Product Standards* have been used most effectively in conjunction with legal documents such as sales contracts, purchase orders, and building codes. When a standard is made part of such a document, compliance with the standard is enforceable by the purchaser or the seller along with other provisions of the document.

*Voluntary Product Standards* are useful and helpful to purchasers, manufacturers, and distributors. Purchasers may order products that comply with *Voluntary Product Standards* and determine for themselves that their requirements are met. Manufacturers and distributors may refer to the standards in sales catalogs, advertising, invoices, and labels on their product. Commercial inspection and testing programs may also be employed, together with grade labels and certificates assuring compliance, to promote even greater public confidence. Such assurance of compliance promotes better understanding between purchasers and sellers.

# **Steel Bi-Fold Closet Door Units, Frames, and Trim**

**Effective October 15, 1970 (See section 5.)**

(This Voluntary Product Standard, initiated by the Steel Door Institute, has been developed under the *Procedures for the Development of Voluntary Product Standards*, published by the U.S. Department of Commerce. See Section 6, *History of Project*, for further information.)

## **1. PURPOSE**

The purpose of this Voluntary Product Standard is to establish nationally recognized sizes and construction requirements for steel bi-fold closet door units, frames, and trim. It is intended that the Standard will provide producers, distributors, architects, builders, and other elements of the industry with a basis for common understanding and promote economies in the manufacture, marketing, and utilization of these items.

## **2. SCOPE AND CLASSIFICATION**

**2.1. Scope**—This Voluntary Product Standard covers the sizes, materials, construction, and finishing of steel bi-fold closet door units, frames, and trim intended to be stock items. Methods of identifying products which comply with the Standard are included. Provisions for the erection of doors, frames, and trim are not included in the Standard, but certain recommendations for storage and erection, as generally endorsed by the manufacturers, are given for information and guidance in the appendix.

**2.2. Classification**—Steel bi-fold closet door units are classified as either two- or four-panel units. A unit is a prefabricated stock item consisting of a two- or four-panel door, a suspension system, and a track. The frame and the trim are not included with the door unit but must be ordered as separate items by the customer. A two-panel door consists of two individual full-height panels hinged together. A four-panel door consists of four individual full-height panels hinged together in pairs.

## **3. REQUIREMENTS**

**3.1. General**—All products represented as complying with this Standard shall meet all the requirements specified herein.

**3.2. Standard opening sizes**—Steel bi-fold closet door units shall be made to fit the opening sizes given in table 1 (see 3.3 for door

sizes and clearances). The method of measuring the standard opening is given in 3.2.2.

**3.2.1. Multiple openings**—Manufacturers shall provide information in their literature or instruction sheets on the correct opening sizes required for multiple unit installations.

**3.2.2. Method of measuring openings**—

**3.2.2.1. Width**—The width of an opening shall be measured from inside to inside of the finished opening before trim angles or moldings are installed.

**3.2.2.2. Height**—The height of an opening shall be measured from the finished floor to the finished opening at the head before tracks are installed. If nailing strips are used, measurement shall be made from the bottom edge of the nailing strip to the finished floor.

**3.3. Door sizes**—Doors shall be sized to fit the opening sizes given in table 1 and to allow a clearance at both the top and the bottom of no more than 1 inch. The jamb clearance on each side of a trimmed opening shall be  $\frac{1}{2}$  inch with a tolerance of plus  $\frac{1}{8}$ , minus  $\frac{1}{4}$  inch. The jamb clearance on each side of a nontrimmed opening shall be  $\frac{1}{4}$  inch with a tolerance of plus  $\frac{1}{8}$ , minus 0 inch. The clearance shall not exceed  $\frac{1}{16}$  inch between adjacent panels and  $\frac{1}{8}$  inch between pairs of panels.

TABLE 1. *Opening sizes*

Four-panel doors					
Actual dimensions					
Nominal size		Trimmed		Without jamb trim	
Width	Height	Max. width	Min. height	Min. width	Min. height
4 ft	6 ft 8 in	4 ft	6 ft 8 $\frac{3}{4}$ in	3 ft 11 $\frac{1}{2}$ in	6 ft 8 $\frac{3}{4}$ in
5 ft	6 ft 8 in	5 ft	6 ft 8 $\frac{3}{4}$ in	4 ft 11 $\frac{1}{2}$ in	6 ft 8 $\frac{3}{4}$ in
6 ft	6 ft 8 in	6 ft	6 ft 8 $\frac{3}{4}$ in	5 ft 11 $\frac{1}{2}$ in	6 ft 8 $\frac{3}{4}$ in
4 ft	8 ft	4 ft	7 ft 11 $\frac{1}{4}$ in	3 ft 11 $\frac{1}{2}$ in	7 ft 11 $\frac{1}{4}$ in
5 ft	8 ft	5 ft	7 ft 11 $\frac{1}{4}$ in	4 ft 11 $\frac{1}{2}$ in	7 ft 11 $\frac{1}{4}$ in
6 ft	8 ft	6 ft	7 ft 11 $\frac{1}{4}$ in	5 ft 11 $\frac{1}{2}$ in	7 ft 11 $\frac{1}{4}$ in
Two-panel doors					
Actual dimensions					
Nominal size		Trimmed		Without jamb trim	
Width	Height	Max. width	Min. height	Min. width	Min. height
2 ft	6 ft 8 in	2 ft $\frac{1}{2}$ in	6 ft 8 $\frac{3}{4}$ in	2 ft	6 ft 8 $\frac{3}{4}$ in
2 ft 6 in	6 ft 8 in	2 ft 6 $\frac{1}{2}$ in	6 ft 8 $\frac{3}{4}$ in	2 ft 6 in	6 ft 8 $\frac{3}{4}$ in
3 ft	6 ft 8 in	3 ft $\frac{1}{2}$ in	6 ft 8 $\frac{3}{4}$ in	3 ft	6 ft 8 $\frac{3}{4}$ in
2 ft	8 ft	2 ft $\frac{1}{2}$ in	7 ft 11 $\frac{1}{4}$ in	2 ft	7 ft 11 $\frac{1}{4}$ in
2 ft 6 in	8 ft	2 ft 6 $\frac{1}{2}$ in	7 ft 11 $\frac{1}{4}$ in	2 ft 6 in	7 ft 11 $\frac{1}{4}$ in
3 ft	8 ft	3 ft $\frac{1}{2}$ in	7 ft 11 $\frac{1}{4}$ in	3 ft	7 ft 11 $\frac{1}{4}$ in

**3.4. Material**—The components shall be of cold-rolled or hot-rolled steel with the thicknesses as specified in table 2.

TABLE 2. Thickness of steel for component parts

Item	Minimum gage of sheet metal	
	Gage No.*	Equivalent gage thickness (inch)
Anchors -----	18	0.0478
Door frames -----	20	.0359
Door panels -----	24	.0239
Door reinforcing -----	24	.0239
Jamb trim -----	26	.0179

\* The gage numbers refer to the *Manufacturers Standard Gage for Steel Sheets*, published in the latest issue of the *Steel Products Manual for Carbon Steel Sheets* of the American Iron and Steel Institute. Copies of the manual are available from the Institute at 150 East 42d Street, New York, New York 10017.

**3.5. Door designs and construction**—Door panels shall be of the flush type, the full-louvered type, or a combination louvered and flush type. The channels that form the edges of the door panel shall be at least 1 inch in depth so as to provide the edge of the door panel with at least a 1-inch thickness. Louvered or flush panels may be furnished with applied or embossed trim to achieve decorative designs. Door panels shall have at least two reinforcements to provide lateral rigidity: one at the top and one at the bottom.

**3.6. Hardware**—Each door unit shall be provided with a suspension system, and door knobs, either attached or in separate packages. When the hardware is not attached by the manufacturer, the panels shall be provided with appropriate holes.

**3.6.1. Suspension system**—The suspension system shall consist of a pivoting device suitable for hinging each pair of panels at the jamb and a mechanism for guiding the door panels during opening and closing. A method shall be provided for adjusting the position of each pair of panels in the opening. The design of the suspension system components shall be such as to insure smooth and functionally satisfactory operation of the door unit in service. The track, precut to fit the actual door width and prepared for field installation, shall be designed to provide the rigidity to serve as a guide channel for the suspension system at the header and floor.

**3.6.2. Hinges**—Each pair of panels shall be securely hinged together to provide rigidity and other characteristics required for smooth operation from a fully opened to a fully closed position.

**3.6.3. Door knobs**—Knobs or handles of a type to afford ease of opening and closing shall be supplied with the door units. The knobs or handles shall be either permanently and securely fastened to the door, or they shall be removable. If removable, they shall be designed for attachment to the doors with threaded bolts and threaded nuts. Either the bolts or the nuts may be designed as an integral part of the knobs, handles, or the door unit. The knobs and handles shall either be installed by the door manufacturers, or they shall be furnished for field installation. If furnished for field installation, appropriate mounting holes shall be predrilled by the door manufacturer.

**3.7. Frames**—Frames for doors that do not run to the ceiling shall consist of two side jamb members and a header bar. These frames shall be either knock-down type or welded. Frames for doors with a nominal height equal to the ceiling height shall consist of two side jamb members only, cut square at both ends.

**3.7.1. Knock-down type**—Knock-down frames shall have joints that interlock rigidly when locked in place, so as to maintain alignment of parts and insure rigidity of completed frames when field assembled. Knock-down frames should be shipped unassembled.

**3.7.2. Welded type**—The headers and jambs of welded frames shall be secured at the corners either by internal welding of faces or by welded splice plates. Joints at jambs and headers shall be further secured at the webs either by welding or by mechanical interlock. Faces of frames at the junction of head and jamb shall present neat line joints.

**3.7.3. Anchors**—Frames shall be provided with sufficient anchors designed to securely attach the frames in the openings.

**3.8. Trim**—The trim shall be prepared for installation in the field, precut to the nominal dimensions, and provided with attaching holes.

**3.9. Finishing**—All doors, frames, and trim shall be chemically treated to insure good paint adhesion, and all visible surfaces shall be finished with high quality paint which is either baked-on or air dried.

**3.10. Workmanship**—The door units, frames, and trim shall be free of defects in workmanship that affect their appearance or serviceability.

#### **4. IDENTIFICATION**

In order that purchasers may identify products conforming to all requirements of this Voluntary Product Standard, producers and distributors may include a statement of compliance in conjunction with their name and address on product labels, invoices, sales literature, and the like. The following statement is suggested when sufficient space is available:

This bi-fold door unit conforms to all of the requirements established in Voluntary Product Standard PS 38-70, developed cooperatively with the industry and published by the National Bureau of Standards under the *Procedures for the Development of Voluntary Product Standards* of the U.S. Department of Commerce. Full responsibility for the conformance of this product to the standard is assumed by (name and address of producer or distributor).

The following abbreviated statement is suggested when available space on labels is insufficient for the full statement:

Conforms to Voluntary Product Standard PS 38-70, (name and address of producer or distributor).

#### 5. EFFECTIVE DATE

The effective date of this Voluntary Product Standard is the date upon which reference to the Standard may be made by producers, distributors, users and consumers, and other interested parties. Compliance by producers with all of the requirements of this Voluntary Product Standard may not actually occur until some time after its effective date. Products shall not be represented as conforming to this Voluntary Product Standard until such time as all requirements established in the Standard are met. The effective date of this Standard is October 15, 1970.

#### 6. HISTORY OF PROJECT

In May 1963, the Steel Door Institute submitted a proposed Standard to the National Bureau of Standards with a request that it be developed in accordance with the *Procedures for the Development of Voluntary Product Standards* of the U.S. Department of Commerce.

Circulation for acceptance was made to the industry in June 1965. The Standard was adjusted to accommodate objections raised to the Standard and was returned to the Standard Review Committee. Final approval of the committee was received in June 1970. Public announcement was made, and the recommended Voluntary Product Standard was circulated on June 24, 1970, for consideration and acceptance. The response to this circulation indicated a consensus among producers, distributors, and users as defined in the published procedures.

On October 7, 1970, the Standard designated PS 38-70, *Steel Bi-Fold Closet Door Units, Frames, and Trim*, was approved for publication by the National Bureau of Standards to be effective October 15, 1970.

*Technical Standards Coordinator:*

Charles W. Devereux, II, Office of Engineering Standards Services,  
National Bureau of Standards, Washington, D.C. 20234

#### 7. STANDING COMMITTEE

The individuals whose names are listed below constitute the membership of the Standing Committee for this Standard. The function of the committee is to review all proposed revisions and amendments in order to keep this Standard up to date. Comments concerning this Standard and suggestions for its revision may be addressed to any member of the committee or to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234, which acts as secretary for the committee.

*Representing Producers*

Ralph Ford (Chairman), Ternes Steel Company, 15500 East  
Twelve Mile Road, Roseville, Michigan 48066

D. R. Oehler, Fenestra, Inc., 4070 West 20th Street, Erie, Pennsylvania 16505

Donald L. King, Steelcraft Manufacturing Company, 9017 Blue Ash Road, Cincinnati, Ohio 45242

#### *Representing Distributors*

Thomas Reyman, Jr., Chief Estimator, Crowe-Gulde Company, P. O. Box 9026, Amarillo, Texas 79105

Vincent Braun, Amweld Building Products, 100 Plant Street, Niles, Ohio 44446

Harold Miller, Warners Industrial Supplies, Metal Door & Frame Division, 615 North Third Street, Minneapolis, Minnesota 55402

#### *Representing Users*

Ted Anderson, Ted D. Anderson Company, Room 202, Transportation Building, P. O. Box 682, Kokomo, Indiana 46901

Elden Talbot, Ashton, Brazier, Montmorency & Associates, 245 West Temple Street, Salt Lake City, Utah 84101

John Montgomery, Jr., Montgomery Construction Company, Inc., P. O. Box 2268, Louisville, Kentucky 40222

#### *Representing General Interest*

Thomas Reichard, Building Research Division, National Bureau of Standards, Washington, D.C. 20234

### **8. ACCEPTORS**

The producers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Voluntary Product Standard prior to its publication. The acceptors have indicated their intention to use this Standard as far as practicable but reserve the right to depart from it when necessary. The list is published to show the extent of recorded public support for this Standard.

### **ASSOCIATIONS**

American Institute of Architects, Washington, D.C.	ton, D.C.
American Institute of Architects, Montana Chapter, Billings, Montana	Engineers Collaborative, The, Chicago, Illinois
American Specification Institute, Chicago, Illinois	National Association of Home Builders, Washington, D.C.
Construction Specifications Institute, Wash-	National Builders Hardware Association, San Antonio, Texas
	Trailer Coach Association, Anaheim, California

### **PRODUCERS**

Fenestra, Division of the Marmon Group, Inc., Erie, Pennsylvania	Roberts Consolidated Industries, Inc., City of Industry, California
Leigh Products, Inc., Coopersville, Michigan	Steelcraft Manufacturing Company, Cincinnati, Ohio
Lynn Manufacturing Company, Plymouth, Michigan	Ternes Steel Company, Roseville, Michigan

### **DISTRIBUTORS**

Albrecht Hardware Company, The, Springfield, Ohio	Alco Building Products Company, Cincinnati, Ohio
---------------------------------------------------	--------------------------------------------------

American Builders Supply, Inc., Oklahoma City, Oklahoma  
 American Wholesale Hardware Company, Long Beach, California  
 Amweld Building Products, Niles, Ohio  
 Anco Sales Company, Corpus Christi, Texas  
 Architectural Hardware, Inc., Columbus, Ohio  
 Architectural Products, Division Allen Hardware, Inc., Allentown, Pennsylvania  
 Bedwell Hardware Company, The, Hartford, Connecticut  
 Bennett Builders Hardware & Supply, Inc., Buffalo, New York  
 Benson, Tom, Industries, Portland, Oregon  
 Binswanger Glass Company, Richmond, Virginia  
 Brownell, A. H., Company, Inc., Miami, Florida  
 Burke Engineering Sales Company, Sioux City, Iowa  
 California Builders Hardware Company, San Francisco, California  
 Central Contractors' Supply Company, Johnstown, Pennsylvania  
 Central Indiana Hardware Company, Inc., Indianapolis, Indiana  
 Colonial Hardware, Inc., Baton Rouge, Louisiana  
 Commercial Hardware, Inc., Detroit, Michigan  
 Concord Millwork, Rochester, New York  
 Construction Hardware Company, San Gabriel, California  
 Counties Hardware Company, Inc., Cinnaminson, New Jersey  
 Dakota Sash & Door Company, Aberdeen, South Dakota  
 Delph Hardware & Specialty Company, Charlotte, North Carolina  
 Deutscher & Sons, Inc., Jamaica, New York  
 Dinkins Hardware Company, Atlanta, Georgia  
 Fort Pitt Hardware Company, Pittsburgh, Pennsylvania  
 Frontier Wholesale Company, Lubbock, Texas  
 Gardner Hardware Company, Minneapolis, Minnesota  
 General Supply Company, Phillipsburg, New Jersey  
 Gluckaman Hardware Corporation, Mineola, New York  
 Henry, Oscar F., Company, Charleston, West Virginia  
 Howell Hardware Company, Chicago, Illinois  
 Hutt Building Material Company, Inc., Pine Bluff, Arkansas  
 Ideal Builders Hardware, Inc., Shreveport, Louisiana  
 Interstate Sash & Door Company, The, Canton, Ohio  
 K & W Sales, Inc., Minneapolis, Minnesota  
 Keppels, T., Inc., Holland, Michigan  
 King & Dexter Company, Portland, Maine  
 Lafayette Wood Works, Inc., Lafayette, Louisiana  
 Lee, W. S., Company, Inc., Tallahassee, Florida  
 Lewis Lumber Company, Neptune, New Jersey  
 Lyon Hardware Company, Wichita, Kansas  
 Madison Millwork Inc., Jackson, Tennessee  
 Material Supply Company, Joliet, Illinois  
 Menschner Builders Hardware, Inc., Maplewood, New Jersey  
 Meyer, G. E., & Son., Inc., South Bend, Indiana  
 Michigan Lumber and Building Material Salesmen, Detroit, Michigan  
 Midland Sash & Door, Inc., Indianapolis, Indiana  
 Mt. Vernon Building Specialty Company, Mt. Vernon, Illinois  
 Nibarger's Builders Supply Company, Inc., Chillicothe, Missouri  
 Ollar Hardware Company, Inc., Moline, Illinois  
 Panama Machinery & Supply Company, Panama City, Florida  
 Peeler Hardware Company, Macon, Georgia  
 Pinellas Lumber Company, St. Petersburg, Florida  
 Rio Grande Lumber Company, Salt Lake City, Utah  
 Rome Hardware Company, Rome, Georgia  
 Sash, Door & Glass Corporation, Richmond, Virginia  
 Shaw, Alan H., Company, Asheville, North Carolina  
 Shawmot Hardware Corporation, Dorchester, Massachusetts  
 Standard Hardware Company, Pensacola, Florida  
 Stillwater Manufacturing Company, Stillwater, Minnesota  
 Sunday & Pedrick, Inc., Scranton, Pennsylvania  
 Thompson, David E., Inc., Needham Heights, Massachusetts  
 Vicon Supply, Toledo, Ohio  
 Vredenburgh, Peter, Lumber Company, Springfield, Illinois  
 Werntz, J. W., & Son, Inc., South Bend, Indiana  
 Wood, W. W., Inc., North Platte, Nebraska

## USERS

Anderson, Ted D., Company, Kokomo, Indiana  
 Balco Drafting and Construction Company, Bayonne, New Jersey  
 Bank Building and Equipment Corporation, St. Louis, Missouri  
 Beck, Henry C., Company, Phoenix, Arizona  
 Bornstein, Ale, Inc., Louisville, Kentucky  
 Bowman, William L., and Associates, Baton Rouge, Louisiana  
 Brook, Leroy, Construction Company, Slidell, Louisiana  
 Brooks Haas Associates Architects, Jacksonville, Florida  
 Brown, W. H., Associates, Inc., Boston, Massachusetts  
 Brust & Brust, Inc., Milwaukee, Wisconsin  
 Camlet, J. Thomas, & Sons, Clifton, New Jersey  
 Clark Engineering Company, Minneapolis, Minnesota  
 Clayton, George E., & Associates, Grand Island, Nebraska  
 Combs, L. I. & Sons, Inc., Gary, Indiana  
 DeNicola, Henry J., Denver, Colorado  
 Durham, Anderson & Freed, Seattle, Washington  
 Ellis Manufacturing Company, Inc., Grand Prairie, Texas  
 Englund, Plummer & Associates, Portland, Oregon  
 Flannagan, Eric G., and Sons, Henderson, North Carolina  
 Forrest Coile & Associates, Newport News, Virginia  
 Fruehauf Buildings, Ypsilanti, Michigan  
 Grant, Ernest R., Woodlands Hills, California  
 Green, W. E., Wheaton, Illinois  
 Grover Dimon Associates, Inc., Saint Paul, Minnesota  
 Holdstein, Milo S., Cleveland, Ohio  
 James & Hicks, Spokane, Washington  
 Kemp, Bunch & Jackson, Jacksonville, Florida  
 Kjellstrom and Lee, Inc., Richmond, Virginia  
 Kuykendall, McCombs, Middleton and Staten, El Paso, Texas  
 Levi, Solomon, Brooklyn, New York  
 Levitt and Sons, Inc., Lake Success, New York  
 Marshfield Homes, Marshfield, Wisconsin  
 Maryland Housing Corporation, Baltimore, Maryland  
 Masters & Mullen Construction Company, The, Cleveland, Ohio  
 Moyle-Aanes & Associates, Butte, Montana  
 National Homes Corporation, Lafayette, Indiana  
 Peavler, Bill E., Bethany, Oklahoma  
 Rickey & Brooks, Sacramento, California  
 Tofani and Fox, Philadelphia, Pennsylvania  
 Vavrus & Associates, Joliet, Illinois  
 Village of Downers Grove, Downers Grove, Illinois  
 Wank, Adams, Slavin, & Associates, New York, New York  
 Watson & Company, Tampa, Florida  
 White Realty Inc., Jackson, Mississippi  
 Wilber, Kendrick, Workman & Warren, Charlotte, North Carolina  
 Wright, Gilfillen, Keske, Inc., Columbus, Ohio  
 Yoder Design Service, Kalona, Iowa

## GENERAL INTEREST

Bright Coop Company, Nacogdoches, Texas  
Denning Mills Company, Richmond, California  
Georgia Electrification Council, Inc., Athens, Georgia

GFDS Engineers, San Francisco, California  
Southern Technical Institute, Marietta, Georgia  
Virginia Polytechnic Institute, Blacksburg, Virginia

## FEDERAL GOVERNMENT

Department of the Army, Albuquerque District  
Corps of Engineers, Albuquerque, New Mexico  
Federal Housing Administration, Phoenix, Arizona

General Services Administration, Washington, D.C.  
National Bureau of Standards, Washington, D.C.

## STATE AND LOCAL GOVERNMENTS

Bureau of Inspection, Lynchburg, Virginia  
City of Chula Vista, Chula Vista, California  
City of Des Moines, Des Moines, Iowa  
City of Greensboro, Greensboro, North Carolina

Department Permits & Licenses, Towson, Maryland  
Dougherty County, Albany, Georgia