

DEPARTMENT OF COMMERCE  
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)  
OFFICE OF STANDARDS SERVICES

**Voluntary PRODUCT STANDARD PS16-69**  
**Types and Sizes of Forms for One-Way Concrete Joist Construction**

Product Standard PS16-69, Types and Sizes of Forms for One-Way Concrete Joist Construction was withdrawn by the Department of Commerce on March 16, 1979.

- The following standard was used to replace PS16-69:  
ANSI/CRSI A28.1, American National Standard for Concrete Construction - Forms for One-Way Concrete Joist Construction.

For assistance and additional information on other related standards please contact:

Concrete Reinforcing Steel Institute (CRSI)  
933 North Plum Grove Road  
Schaumburg, Illinois 60173-4758  
Phone: (847) 517-1200  
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# federal register

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## DEPARTMENT OF COMMERCE

National Bureau of Standards

### VOLUNTARY PRODUCT STANDARDS

#### Intent To Withdraw

In accordance with section 10.12 of the Department's "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10), notice is hereby given of the intent to withdraw Voluntary Product Standard PS 16-69, "Types and Sizes of Forms for One-Way Concrete Jolst Construction."

This withdrawal action is being proposed for the reason that PS 16-69 is adequately covered by the American National Standards Institute standard ANSI A48.1-1978, "Types and Sizes of Forms for One-Way Concrete Jolst Construction," and duplication is inappropriate and not in the public interest.

Any comments or objections concerning this intended withdrawal of this standard should be made in writing to Standards Development Services, National Bureau of Standards, Washington, D.C. 20234, on or before December 29, 1978. The effective date of withdrawal will not be less than 60 days after the final notice of withdrawal. Withdrawal action terminates the authority to refer to a published standard as a voluntary standard developed under the Department of Commerce procedures from the effective date of withdrawal.

Dated: November 21, 1978.

ERNEST AMBLER,  
*Director.*

[FR Doc. 78-33354 Filed 11-28-78; 8:45 am]

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PUBLICATION



**FILE COPY** **NBS**  
**Voluntary**  
**Product**  
**Standard**

**WITHDRAWN** PS 16-69

**U.S.**  
**DEPARTMENT**  
**OF**  
**COMMERCE**  
**National**  
**Bureau**  
**of**  
**Standards**

# PRODUCT STANDARDS

*Product Standards* are published voluntary standards that establish (1) dimensional requirements for standard sizes and types of various products, (2) technical requirements for the product, and (3) methods of testing, grading, and marking these products. The objective is to define requirements for these products in accordance with the principal demands of the trade. *Product Standards* are published by the National Bureau of Standards of the U. S. Department of Commerce.

## Development of a PRODUCT STANDARD

The Bureau's Office of Engineering Standards Services works closely with business firms, trade organizations, testing laboratories, and other appropriate groups to develop such standards. (A group interested in developing a *Product Standard* may submit a written request to the Office of Engineering Standards Services, National Bureau of Standards.) After determining that the desired standard would be technically feasible and in the public interest, a specific proposal is developed in consultation with interested trade groups and circulated for industry consideration and comment.

Subsequently, a Standard Review Committee is established to review the proposed standard for conformance with the Department of Commerce procedures. The committee includes qualified representatives of producers, distributors, and users or consumers of the product. When approved by the committee, copies of the recommended standard are distributed for consideration and acceptance. When the acceptances show general agreement by all segments of the industry, and when there is no substantive objection deemed valid by the National Bureau of Standards, the Bureau announces approval of the *Product Standard* and proceeds with its publication.

## Use of a PRODUCT STANDARD

*Product Standards* are developed for the maximum use of industry by ensuring that producers, distributors, and users or consumers cooperate in the development of a voluntary *Product Standard*. The adoption and use of a *Product Standard* is *voluntary*. *Product Standards* are used most effectively in conjunction with legal instrumentalities such as building codes, purchase orders, and sales contracts. When a standard is made part of such a contract, compliance with the standard is enforceable by the buyer or the seller along with other provisions of the contract. There is *no* governmental regulation or control involved.

Purchasers may order products that comply with Product Standards and determine for themselves that their requirements are met. More often, manufacturers refer to the standards in sales catalogs, advertising, invoices, and labels on the product. Commercial inspection and testing programs are also employed for greater effectiveness together with grade labels, hallmarks and certificates. Such assurance of compliance promotes confidence and understanding between buyers and sellers.

### EFFECTIVE DATE

Having been passed through the regular procedures of the Office of Engineering Standards Services, National Bureau of Standards, and approved by the acceptors hereinafter listed in part, this Product Standard is issued by the National Bureau of Standards, effective:

December 1, 1969

Lewis M. Branscomb  
Director

## Types and Sizes of Forms for One-Way Concrete Joist Construction

(This voluntary standard, initiated by The Concrete Reinforcing Steel Institute, has been developed under the *Procedures for the Development of Voluntary Product Standards*, published by the Department of Commerce. See section 5, *History of Project*, for further information.)

Effective December 1, 1969

### 1. PURPOSE

1.1. The purpose of this Product Standard is to establish nationally recognized standard types and sizes of forms for one-way concrete joist construction. The Standard is intended to provide a basis for common understanding among producers, distributors, users, and others interested in this product.

### 2. SCOPE AND CLASSIFICATION

2.1. **Scope**—This Product Standard covers four types of forms for one-way concrete joist construction<sup>1,2</sup> and standard sizes for these types. Definitions of concrete joist construction and one-way joist construction are provided under Section 4.

2.2. **Classification**—This Standard covers the following types of forms for one-way concrete joist construction:

**Standard forms**—Open ended forms used in forming the intermediate section of a joist.

**Filler forms**—Open ended forms having smaller widths than the standard forms. These forms are intended for use in filling odd spaces. These forms are not tapered.

**Tapered end forms**—Forms having one closed end and tapering uniformly in width from the open to the closed end. End closures may or may not be attached to the tapered form body. These forms are used at the ends of joists where extra joist width is required.

**End closure forms**—Forms having one closed end which may be used to close ends of form rows at beams, bridging joists, and spical headers.

### 3. REQUIREMENTS

3.1. **Types and sizes**—The sizes of the different types of forms shall be as listed in tables 1 and 2. The illustrations provided are descriptive and do not preclude the furnishing of forms of different construction conforming to the dimensional requirements of this Standard.

<sup>1</sup> Types and sizes of forms for two-way concrete joist construction are covered by Simplified Practice Recommendation R 265-63, *Forms for Two-Way Concrete Joist Floor and Roof Construction*, available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

<sup>2</sup> Design requirements for concrete joist floor construction are given in Part V, Chapter 20 of American Concrete Institute (ACI) Standard 318-63, *Building Code Requirements for Reinforced Concrete*, available from the American Concrete Institute, P. O. Box 4754, Redford Station, Detroit, Michigan 48219.

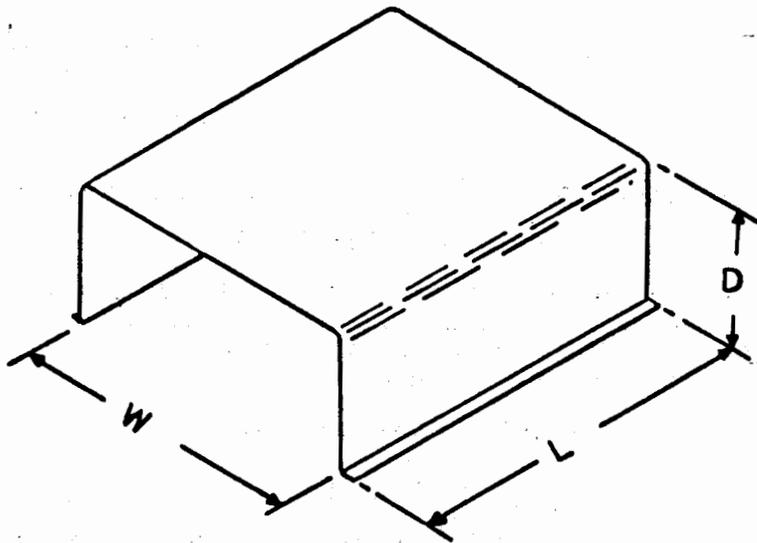


FIGURE 1. *Illustration of standard and filler types of forms.*  
 Note: The forms are available either with or without flanges.

TABLE 1. *Sizes of standard and filler forms<sup>1</sup>*  
 (See Figure 1)

Type of form	Width <sup>2</sup> (W)	Length <sup>3</sup> (L)	Depth <sup>4</sup> (D)
Standard	<i>Inches</i> 20 or 30	<i>Inches</i> 12, 24, or 36	<i>Inches</i> 6, 8, 10, 12, 14 16, or 20
Filler	10 or 15	36	

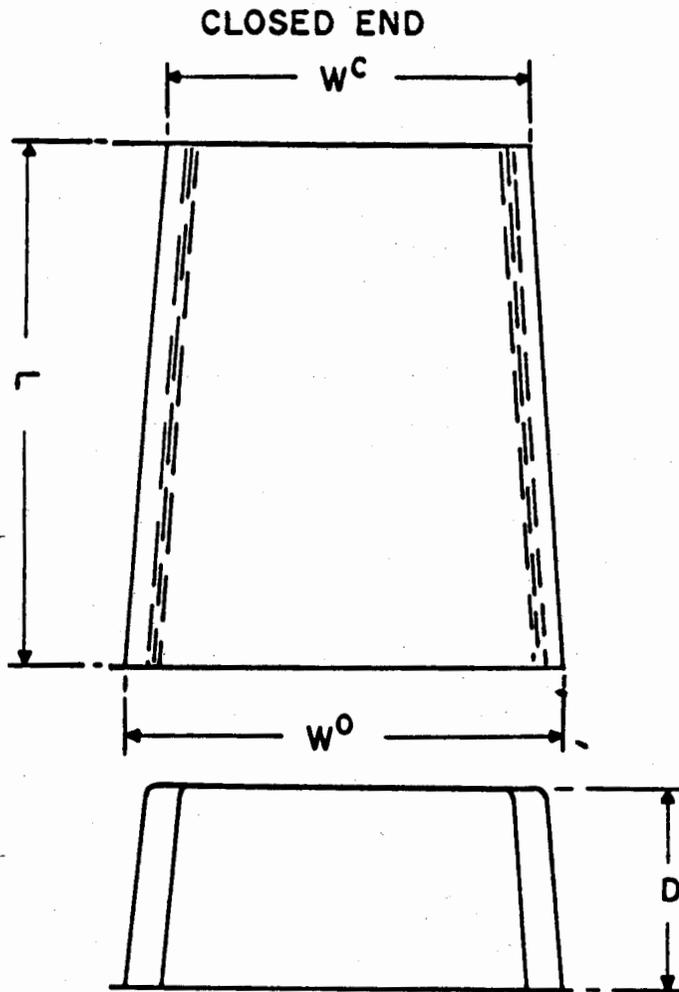
1 inch equals 25.4 millimeters

<sup>1</sup>End closure forms are available in all widths and depths shown for standard and filler forms and in varying lengths. The closed end of the end closure form is not shown in Figure 1.

<sup>2</sup>Width is the horizontal clear distance between concrete joists, measured at the bottom of the joists.

<sup>3</sup>Standard lengths are shown, but variations are available.

<sup>4</sup>Depth is the vertical distance from the underside of the concrete slab to the bottom of the concrete joist, measured at the center of the joist.



**FIGURE 2.** *Illustration of tapered end form.*  
 Note: The forms are available either with or without flanges.

**TABLE 2.** *Sizes of tapered end forms*  
 (See Figure 2)

Width ( $W^o$ )	Taper	Width ( $W^c$ )	Length (L)	Depth (D)
<i>Inches</i> 30	<i>Inches</i> 5	<i>Inches</i> 25	<i>Inches</i> 36	<i>Inches</i> 6, 8, 10, 12 14, 16, or 20
20	4	16		

1 inch equals 25.4 millimeters

#### 4. DEFINITIONS

4.1. For the purpose of this Standard the following definitions shall apply:

**Concrete joist construction**—Concrete joist construction is defined as consisting of a monolithic combination of regularly spaced joists and a thin slab of concrete cast in place to form an integral unit with the supporting beams, columns, or walls.

**One-Way joist construction**—One-way joist construction is defined as concrete joist construction in which the joists are arranged in one direction in a column bay.

#### 5. HISTORY OF PROJECT

In March 1962, The Concrete Reinforcing Steel Institute (CRSI) requested the cooperation of the Office of Commodity Standards (now the Office of Engineering Standards Services) in the processing of a revision to Simplified Practice Recommendation R 87-32, *Forms for Concrete Joist Construction Floors*.

In December 1962, CRSI requested work on the revision be discontinued until the industry could determine the effect of a pending American Concrete Institute Building Code for reinforced concrete. That code was subsequently published in 1963. Further processing of the revision was requested in December 1965, at which time CRSI submitted a proposed draft.

The proposed revision was submitted to a reconstituted Standing Committee, representing producers, distributors, and users of the forms, in May 1967 and again in January 1968. The latter submittal was approved by the committee and was circulated to industry for acceptance balloting in February 1969. The ballots returned to the National Bureau of Standards in response to this circulation indicated that a consensus of acceptability as defined under the *Procedures for the Development of Voluntary Product Standards* existed within the industry with regard to the Standard.

On November 4, 1969, the Standard, designated PS 16-69. *Types and Sizes of Forms for One-Way Concrete Joist Construction*, was approved for publication by the National Bureau of Standards to be effective December 1, 1969.

*Technical Standards Coordinator:*

J. W. Eisele, Office of Engineering Standards Services  
National Bureau of Standards

#### 6. STANDING COMMITTEE

6.1. 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 Office of Engineering Standards Services, National Bureau of Standards, U.S. Department of Commerce, which acts as secretary for the committee.

### *Representing Manufacturers*

Merle E. Kersten, The Ceco Corporation, 5601 West 26th Street,  
Chicago, Illinois 60650 (Chairman)  
Frank D. Reiland, Gateway Erectors, Inc., 3233 West Grand Avenue,  
Chicago, Illinois 60651  
Bernard Friedman, Grid Flat Slab Corporation, 145 Freeport Street,  
Boston, Massachusetts 02122

### *Representing Distributors*

Earl E. Jones, Jr., J & B Building Products, Inc., P. O. Box 7747,  
Houston, Texas 77007  
William M. Donley, Ernest F. Donley's Sons, Inc., P. O. Box 4400,  
Cleveland, Ohio 44125  
Roy G. Walton, Hausman Corporation, P. O. Box 416, Toledo, Ohio  
43601  
C. G. Scurich, Steelform Contracting Company, 666 Harrison Street,  
San Francisco, California 94107  
J. W. Patterson, Southern GF Company, Inc., 257-263 Decatur Street,  
Atlanta, Georgia 30303

### *Representing Users*

R. C. Reese, Raymond C. Reese Associates, 743 South Byrne Rd.,  
P. O. Box 556, Toledo, Ohio 43601  
David L. Peterson, Ellerbe Architects, 333 Sibley Street, St. Paul,  
Minnesota 55101  
N. J. Campbell, Consulting Engineer, 911 Locust Street, St. Louis,  
Missouri 63101  
Richard R. Bradshaw, Richard R. Bradshaw, Inc., 14401 Gilmore  
Street, Van Nuys, California 91401  
John C. Bartley, Bartley, Inc., 433 Gravier Street, New Orleans,  
Louisiana 70130  
M. K. Hurd, American Concrete Institute, Box 4754, Redford Station,  
22400 West Seven Mile Road, Detroit, Michigan 48219

### *Representing General Interests*

Paul F. Rice, Concrete Reinforcing Steel Institute, 228 North LaSalle  
Street, Chicago, Illinois 60601  
Leopold F. Skoda, Building Research Division, National Bureau of  
Standards, Materials Durability and Analysis Section, Washington,  
D. C. 20234

## **7. ACCEPTORS**

7.1. The manufacturers, distributors, users and others listed below have individually indicated in writing their acceptance of this Product Standard prior to its publication. The acceptances indicate an intention to utilize the standard as far as practicable, but reserve the right to depart from it as may be deemed desirable. The list is published to show the extent of recorded public support for the standard and should not be construed as indicating that all products made by the acceptors actually comply with its requirements.

## ASSOCIATIONS

American Concrete Institute, Detroit, Michigan 48219  
American Institute of Supply Associates, Inc., Washington, D.C. 20037  
Associated General Contractors of America, Inc., Washington, D.C. 20006  
Concrete Reinforcing Steel Institute, Chicago, Illinois 60601  
National Association of Home Builders, Washington, D.C. 20036  
Portland Cement Association, Skokie, Illinois 60076

## PRODUCERS

Bethlehem Steel Corporation, Bethlehem, Pennsylvania, 18016  
The Ceco Corporation, Chicago, Illinois 60650  
Ernest F. Donley's Sons, Cleveland, Ohio 44125  
Fibraco Manufacturing, Inc., Clear Lake, Iowa 50428  
F. J. Folz Co., Inc., Evansville, Indiana 47112  
The Goldsmith Metal Lath Company, Cincinnati, Ohio 45232  
Hausman Corporation, Toledo, Ohio 43601  
The Heltzel Steel Form and Iron Company, Warren, Ohio 44481  
J & B Building Products Co., Houston, Texas 77055  
Norfolk Iron & Metal Company, Norfolk, Nebraska 68701  
Structural Fiberglass, Inc., Verplanck, New York 10596  
Southern GF Company, Atlanta, Georgia 30303

## FIRMS AND OTHER INTERESTS

H. B. Agsten & Sons, Inc., Charleston, West Va. 35330  
American Builders Supply Company, Louisville, Kentucky 40204  
Armour & Associates, Inc., Atlanta, Georgia, 30329  
Ashton, Brazier, Montmorency & Assoc., Salt Lake City, Utah 84101  
Baird Steel, Inc., Mobile, Alabama 36601  
Henry C. Beck Company, Dallas, Texas 75202  
Bell & Bell Architects, Chicago, Illinois 60639  
Brooks, Borg, and Skiles, Des Moines, Iowa 50309  
J. Thomas Camlet & Son, Clifton, New Jersey 07014  
Campbell & Wieland, St. Louis, Missouri 63101  
C F & I Fabricators, Denver, Colorado 80204  
Chastain and Tindel, Inc., Atlanta, Georgia, 30313  
Christian, Schwarzenberg & Gaede, Cleveland, Ohio 44114  
City of Lakewood, Lakewood, Ohio 44107  
Cleverdon, Varney and Pike, Boston, Massachusetts 02118  
Concrete Steel Company, New York, New York 10016  
Cowin & Company, Inc., Minneapolis, Minnesota 55414  
Dalco Engineering Company, Denver, Colorado 80202  
Delapp Engineering Corporation, Santa Fe, New Mexico 87501  
Frederick Duncan, Birmingham, Alabama 35202  
William E. Edwards Structural Engrs. Inc., Atlanta, Georgia 30309  
John Fierbaugh, Cleveland, Ohio 44115  
Sepp Firnkas Engineering, Boston, Massachusetts 02116  
Fischer Steel Corporation, Memphis, Tennessee 38118  
Eric G. Glannagan & Sons, Henderson, North Carolina 27536  
Florida Steel Corporation, Charlotte, North Carolina 28201  
C. Malcolm Galley, Atlanta, Georgia 30305  
Giffels & Rossetti, Inc., Detroit, Michigan 48226  
Grid Flat Slab Corporation, Boston, Massachusetts 02122  
Illinois Slag & Ballast Company, Chicago, Illinois 60607  
Inland-Ryerson Construction Products Co., Chicago, Illinois 60680  
Peter Klewit Son, Inc., Omaha, Nebraska 68131  
C. H. Leavell & Company, El Paso, Texas 79987  
MacLellan, Dormer, Mulcahy, Archibald, Inc., Providence, Rhode Island 02903  
Charles Maguire & Associates, Inc., Boston, Massachusetts 02111  
Arthur G. McKee & Company, Hibbing, Minnesota 55746  
Miller-Davis Company, Melrose Park, Illinois 60165  
Owen Steel Company, Inc., Columbia, South Carolina 29202  
Plantations Steel Company, Warwick, Rhode Island 02887  
Raymond C. Reese Associates, Toledo, Ohio 43601  
Smith, Korach & Associates, Miami, Florida 33125  
South Carolina Steel Corporation, Greenville, South Carolina 29602  
Symmes, Maini & McKee Inc., Cambridge, Massachusetts 02138  
United Engineers & Constructors, Inc., Philadelphia, Pennsylvania 19105  
United Steel Products Co., Inc., Trenton, New Jersey 08604  
Bertram Warshaw & Associates, Miami, Florida 33126  
Wigton-Abbott Corporation, Plainfield, New Jersey 07061  
Jack Wilborn Engineers, Atlanta, Georgia 30303

## GOVERNMENT AGENCIES

Bureau of Prisons, Dept. of Justice, Washington, D.C. 20537  
General Services Administration, Washington, D.C. 20406  
National Park Service, Washington, D.C. 20242  
Office of the Chief of Engineers, Department of the Army, Washington, D.C. 20315

## THE NATIONAL ECONOMIC GOAL

Sustained maximum growth in a free market economy, without inflation, under conditions of full employment and equal opportunity

## THE DEPARTMENT OF COMMERCE

The historic mission of the Department is "to foster, promote and develop the foreign and domestic commerce" of the United States. This has evolved, as a result of legislative and administrative additions, to encompass broadly the responsibility to foster, serve and promote the nation's economic development and technological advancement. The Department seeks to fulfill this mission through these activities:



## MISSION AND FUNCTIONS OF THE DEPARTMENT OF COMMERCE

"to foster, serve and promote the nation's economic development and technological advancement"

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- Urban Affairs Council

- Environmental Quality Council

Promoting progressive business policies and growth.

- Business and Defense Services Administration

- Office of Field Services

Assisting states, communities and individuals toward economic progress.

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- United States Travel Service

- Maritime Administration

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- Environmental Science Services Administration

- Patent Office

- National Bureau of Standards

- Office of Telecommunications

- Office of State Technical Services

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- Bureau of the Census

- Office of Business Economics

NOTE: This schematic is neither an organization chart nor a program outline for budget purposes. It is a general statement of the Department's mission in relation to the national goal of economic development.

**U.S. DEPARTMENT OF COMMERCE • Maurice H. Stans, Secretary**

**NATIONAL BUREAU OF STANDARDS • Lewis M. Branscomb, Director**

The National Bureau of Standards<sup>1</sup> was established by an act of Congress March 3, 1901. Today, in addition to serving as the Nation's central measurement laboratory, the Bureau is a principal focal point in the Federal Government for assuring maximum application of the physical and engineering sciences to the advancement of technology in industry and commerce. To this end the Bureau conducts research and provides central national services in four broad program areas. These are: (1) basic measurements and standards, (2) materials measurements and standards, (3) technological measurements and standards, and (4) transfer of technology.

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Office of Standard Reference Data—Clearinghouse for Federal Scientific and Technical Information<sup>3</sup>—Office of Technical Information and Publications—Library—Office of Public Information—Office of International Relations.

<sup>1</sup> Headquarters and Laboratories at Gaithersburg, Maryland, unless otherwise noted; mailing address Washington, D.C. 20234.

<sup>2</sup> Located at Boulder, Colorado 80302.

<sup>3</sup> Located at 5285 Port Royal Road, Springfield, Virginia 22151.

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