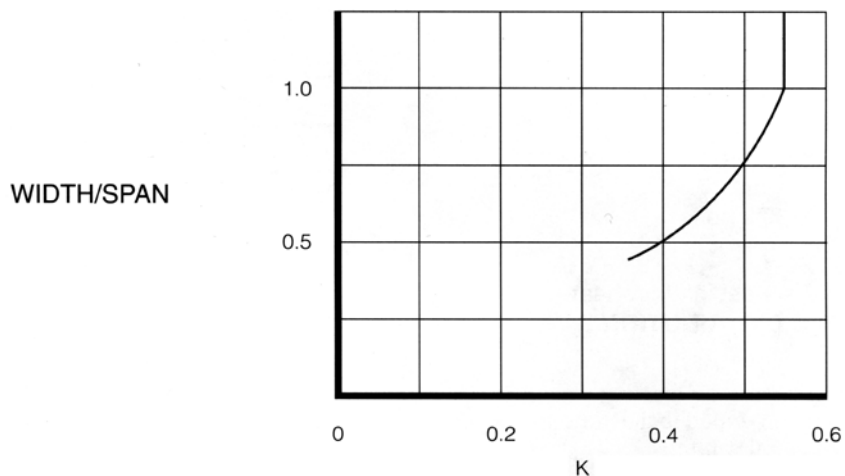


WIDTH TO SPAN RATIO EFFECT ON LOAD DISTRIBUTION

In the study of distribution of non-uniform loads*, it was found that the midspan distribution width was a function of the width to span ratio. In most situations, this ratio will be much greater than 1.0.

However, for the special cases where this ratio is less than 1.0, the basic distribution widths* must be expressed as KL , where K is determined from the figure below.

For edge loads, the factor K must be halved. Where central openings are present, a net width should be used for determining the width to span ratio.



*For further information, refer to the Research Notes entitled “LOAD DISTRIBUTION”.

A design example is given on the reverse side.

WIDTH TO SPAN RATIO EFFECT ON LOAD DISTRIBUTION

GIVEN:

8" Spancrete® hollowcore floor shown
 Superimposed live load = 40 psf
 Superimposed dead load = 10 psf Plank dead load = 64 psf

PROBLEM:

Determine the equivalent effective design loadings to enable the floor slabs within the allowable distribution widths to carry the loads shown.

SOLUTION:

$$\text{Width/Span} = \frac{16.67}{28} = 0.6$$

From chart, $K = 0.44$

Figure separately the distribution for the concentrated load, the wall load, and the uniform loads.

For flexural design:

$$P_u = \frac{1.2 (2800) + 1.6 (4400)}{0.44 \times 28} = 844 \text{ plf}$$

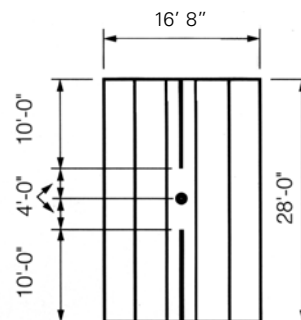
$$W_u = \frac{1.2 (700) + 1.6 (1100)}{0.44 \times 28} = 211 \text{ psf}$$

$$W_u = 1.2 (64 + 10) + 1.6 (40) = 153 \text{ psf}$$

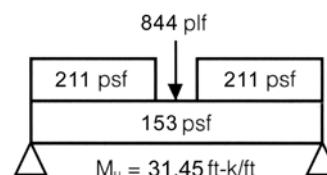
For shear design:

Width to span ratio does not affect design for shear.

See RESEARCH NOTE "LOAD DISTRIBUTION."



WALL LOAD = 700 plf DL
 WALL LOAD = 1100 plf LL
 CONCENTRATED LOAD = 2800lb. DL
 CONCENTRATED LOAD = 4400lb. LL



FACTORED LOADS FOR FLEXURE

(Working stress conditions will also have to be checked.)

Note: Sample calculations are intended to illustrate the concept presented and do not represent all considerations necessary for the complete design. This research was done using 40" wide, 8" thick Standard Spancrete. However, this concept applies to all Spancrete cross sections.

EAST

Oldcastle Precast, Inc.
 South Bethlehem, NY

Oldcastle Precast, Inc.
 Manchester, NY

Conewago Precast Building
 Systems
 Hanover, PA

MIDWEST
 Spancrete, Inc.
 Green Bay, WI

Spancrete Industries, Inc.
 Waukesha, WI

Hanson Structural Precast
 Midwest, Inc.
 Maple Grove, MN

Spancrete of Illinois, Inc.
 Arlington Heights, IL

WEST
 Hanson Structural Precast
 Pacific, Inc.
 Inwindale, CA

KIE-CON
 Div. of Kiewitt Pacific Co.
 Antioch, CA

Owell Precast
 Sandy, UT

SOUTHWEST
 Manco Structures, Ltd.
 Schertz, TX

SOUTH

Cement Industries, Inc.
 Fort Myers, FL

Florida Precast Industries, Inc.
 Sebring, FL

MC Precast, Inc.
 Atlanta, GA

CANADA
 Burnco Concrete Products Ltd.
 Calgary, Canada

EGYPT
 Samcrete Egypt
 Ahram, Giza

MEXICO
 ITISA
 Mexico City, Mexico

Spancrete Noreste
 Monterrey, Mexico

TURKEY
 Yapi-Merkezi
 Camlica-Istanbul, Turkey

CARIBBEAN
 Preconco Limited
 Barbados, West Indies

Spancrete Caribbean, Ltd.
 Trinidad, West Indies

UAE
 Hi-Tech Concrete Products, LLC
 Abu Dhabi, UAE

MACHINE MANUFACTURER
 Spancrete Machinery
 Corporation
 Waukesha, WI

Spancrete is also manufactured in

Armenia	Denmark	Russia
Australia	Guatemala	South Korea
Brazil	Hungary	Spain
China	Ireland	Switzerland
Croatia	Israel	
	Japan	