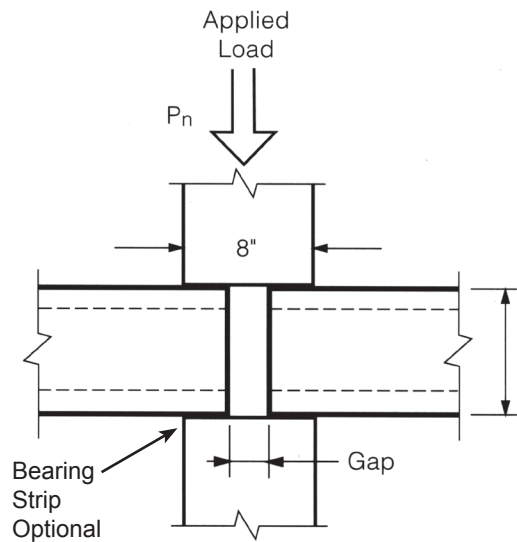


CRUSHING CAPACITY OF PLANK ENDS

Tests were conducted on the end crushing strength of Standard Spancrete® hollowcore sections and Ultralite Spancrete sections. The most common practical occurrence of this loading mechanism is a wall bearing structure as detailed here. The factored load capacities established by the tests are given below.



TEST LOAD SECTION

Plank Thickness	1/2" Gap UngROUTED	2" Gap UngROUTED	Grouted Joint
8"	51 k/ft	56 k/ft	144 k/ft
10"	51 k/ft	46 k/ft	144 k/ft

ULTIMATE

STRENGTH

CRUSHING

For 8" bearing wall:

- Values listed include ϕ factor ($P_u = \phi P_n$)
- Grout is normal 3:1 mix.

A design example is given on the reverse side.



DESIGN EXAMPLE

CRUSHING CAPACITY OF PLANK ENDS

GIVEN:

A 10 story building with 28' spans, 8'-8" floor to floor height, floor and roof live loads of 40 psf and dead loads of 10 psf. Live load reduction allowed on floors only.

PROBLEM:

Check capacity of Spancrete® hollowcore to withstand crushing load at lowest level.

SOLUTION:

Floor dead loads $(64 + 10)$ psf \times 28 ft \times 8 = 16,576 #/ft

Roof dead loads $(64 + 10)$ psf \times 28 ft \times 1 = 2072 #/ft

Wall dead loads 100 psf \times 8 ft \times 9 = 7200 #/ft

Floor live loads 40 psf \times 40% \times 28 ft \times 8 = 3584 #/ft

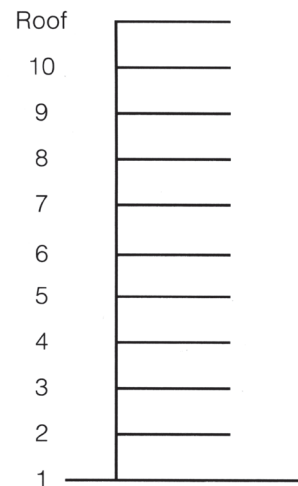
Roof live load 40 psf \times 28 ft \times 1 = 1120 #/ft

ULTIMATE LOAD

$U = 1.2D + 1.6L + .5 L_r$ (ACI 318-02, EQ. 9-2)

$= (1.2)(16.6 + 2.1 + 7.2) + (1.6)(3.6) + (.5)(1.1) = 37.5$ k/ft.

Capacity of 8" plank \geq 51 k/ft ungrouted, or 144 k/ft grouted.



CONCLUSION:

Spancrete plank will support the heaviest vertical load imposed by the given system.

Note: Sample calculations are intended to illustrate the concept presented and do not represent all considerations necessary for the complete design.

MIDWEST

Hanson Structural
Precast Midwest, Inc.
Maple Grove, Minnesota

Spancrete, Inc.
Green Bay, Wisconsin

Spancrete Industries, Inc.
Waukesha, Wisconsin

Spancrete of Illinois, Inc.
Arlington Heights, Illinois

Wells Concrete
Wells, Minnesota

WEST

Hanson Structural
Precast Pacific, Inc.
Irwindale, California

KIE-CON

Division of Kiewit Pacific Co.
Anitoch, California

Owell Precast
Sandy, Utah

SOUTHWEST

Manco Structures, Ltd.
Schertz, Texas

SOUTH

Cement Industries, Inc.
Fort Myers, Florida

Florida Precast Industries, Inc.
Sebring, Florida

EAST

Mid-Atlantic Precast, LLC.
King George, Virginia

EGYPT

Samcrete Egypt
Ahram, Giza

MEXICO

ITISA
Mexico City, Mexico

Spancrete Noreste
Monterrey, Mexico

CROATIA

Mucic & Co
Dugopolje, Croatia

CARIBBEAN

Preconco Limited
Barbados, West Indies

TURKEY

Yapi-Merkezi
Camlica-Istanbul, Turkey

UAE

Hi-Tech Concrete
Products LLC
Abu Dhabi, UAE

MACHINE MANUFACTURER Spancrete Machinery Corporation

N16 W23415 Stoneridge Drive
Waukesha, WI 53188
Telephone: 414-290-9000
Fax: 414-290-9130
www.spancrete-machinery.com

SPANCRETE IS ALSO MANUFACTURED IN:

Armenia	Ireland
China	Japan
Denmark	Russia
Guatemala	South Korea
Hungary	Switzerland

Spancrete® hollowcore is a registered trademark