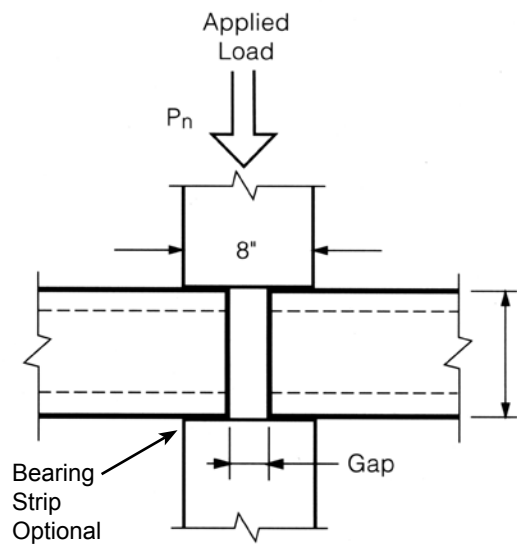


CRUSHING CAPACITY OF PLANK ENDS

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

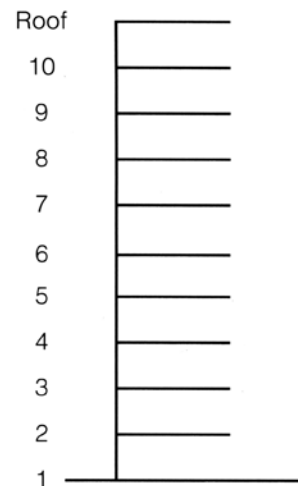
Roof live load 40 psf \times 28 ft \times 1 = 1120 #/ft

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 ≥ 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.

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.
Inwisdale, 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
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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
Belgium	Hungary	Spain
Brazil	Ireland	Switzerland
China	Israel	
Croatia	Japan	