

DOWEL CONNECTIONS

INTRODUCTION:

Tests were conducted on connections between Spancrete® hollowcore plank and masonry walls using a rebar driven into a hole drilled through the plank and into a bond beam. This is an economical connection that is occasionally used at lap and bearing conditions to resist relatively light loads. The connection is used for inward or outward pressures or to transfer diaphragm shear forces along the length of the wall.

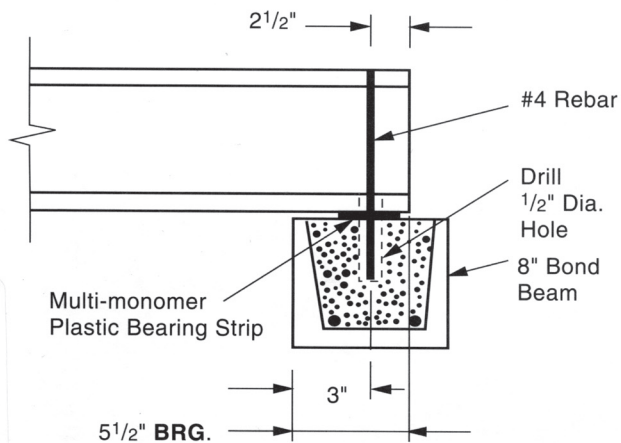


Figure 1 End Bearing

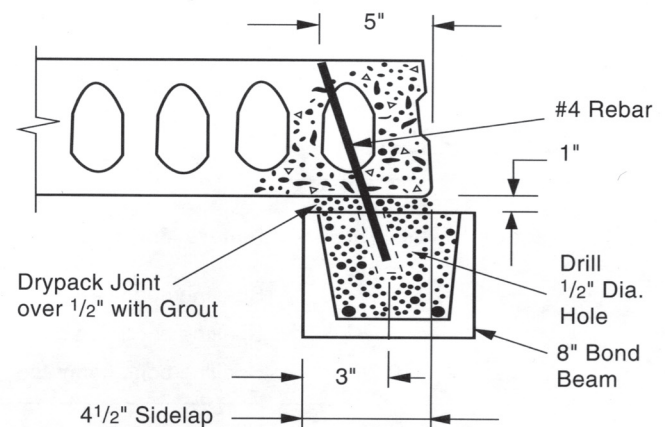


Figure 2 Sidelap

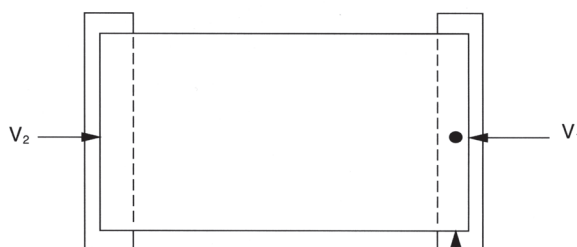
CONCLUSIONS:

1. Shear force can be transferred from Spancrete to a masonry wall with this connection.
2. Plank thickness is not a factor in the capacity of the connection. The results are applicable to all plank thicknesses.
3. The thickness of concrete below the cores in the tested plank represents the minimum currently in use. The results may therefore be conservatively applied to other plank cross sections.
4. The results presented are actual test data from a small number of samples. It is suggested that the lowest test value for each detail be used with appropriate ACI and PCI load factors and a strength reduction factor of at least .70.

The data listed are minimum test values obtained for shear in the direction noted. Appropriate load factors and strength reduction factors must be applied.

END BEARING DATA

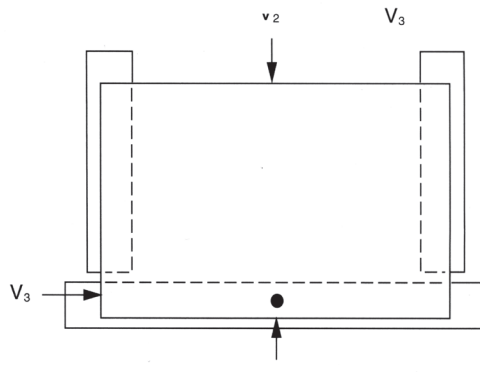
Load Direction	Minimum* V _{test} (KIPS)	Failure Mode
V ₁	2.78	Concrete Cone
V ₂	3.40	Concrete Cone
V ₃	4.50	Rebar Yield



Note: Dowel location in bond beam is critical to maintain capacity.

SIDELAP DATA

Load Direction	Minimum* V _{test} (KIPS)	Failure Mode
V ₁	1.87	Spalling bond beam face
V ₂	2.96	Spalling bond beam face
V ₃	2.66	Spalling bond beam face



Note: Actual test values must be reduced by appropriate strength reduction factors and safety factors to obtain working load values. The research was done using 48" wide, 8" thick Standard Spancrete® hollowcore. However, this concept applies to all Spancrete cross sections.

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

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China	Japan
Denmark	Russia
Guatemala	South Korea
Hungary	Switzerland

Spancrete® hollowcore is a registered trademark