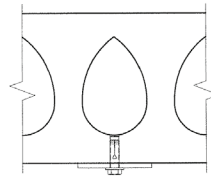


Investigation of Inserts in Spancrete® Hollowcore Plank – Bottom Expansion Bolts

As part of a program for testing inserts used in Spancrete® plank, a common brand of ½ inch diameter expansion anchors were installed in the test plank bottom, directly under the cores. The bottom thickness was either 1-1/8 inches or 1-1/2 inches depending on the Spancrete section used.

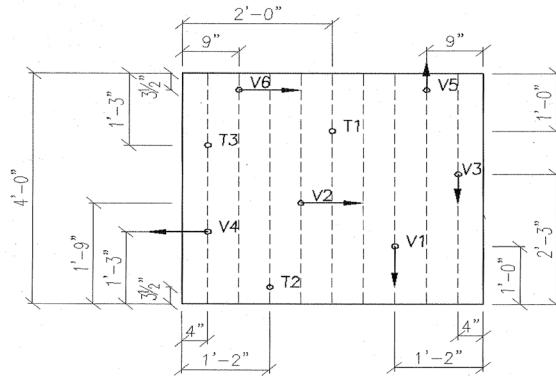


½" x 2-3/4" Power-Bolt Heavy-duty Expansion Anchor
 CAT. NO. 6930

CONCLUSIONS:

1. Drilled expansion anchors are an economical and acceptable way of fastening to a Spancrete plank.
2. It is critical that the anchor does not extend into the core, that the embedment (1-1/8" or 1-1/2") agree with the proper load capacity chart, and that the manufacturer's specified installation procedures be followed.
3. Holding power is reduced when the insert is located near any plank edge and in thin concrete sections.
4. If the concrete spalls or cracks during the drilling and torquing of the anchors, the insert should not be used at that location.
5. Anchors with 1-1/8" embedment were not able to be tested in shear.
6. Test values must be reduced by appropriate strength reduction factors and safety factors to obtain working load values.

Research Notes are produced periodically by the SMA Technical Committee. SMA Research Notes are based on testing done for the Spancrete Manufacturers Association. The information contained in these Research Notes should be used by those experienced in structural design and should not replace sound engineering judgment.



(dashed lines represent core centerlines)

TEST RESULTS

TENSION

	1-1/2" Bottom Flange			1-1/8" Bottom Flange		
	T1	T2	T3	T1	T2	T3
Average	4670	4090	4280	2560	2565	3035
Low	3787	3708	3491	1884	1832	1699

SHEAR

	1-1/2" Bottom Flange					
	V1	V2	V3	V4	V5	V6
Average	7515	8030	6830	4945	6310	6275
Low	4581	6371	4811	3297	5558	5005

NOTE: Values given are test values in pounds. Appropriate strength reduction factors and safety factors must be applied.

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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