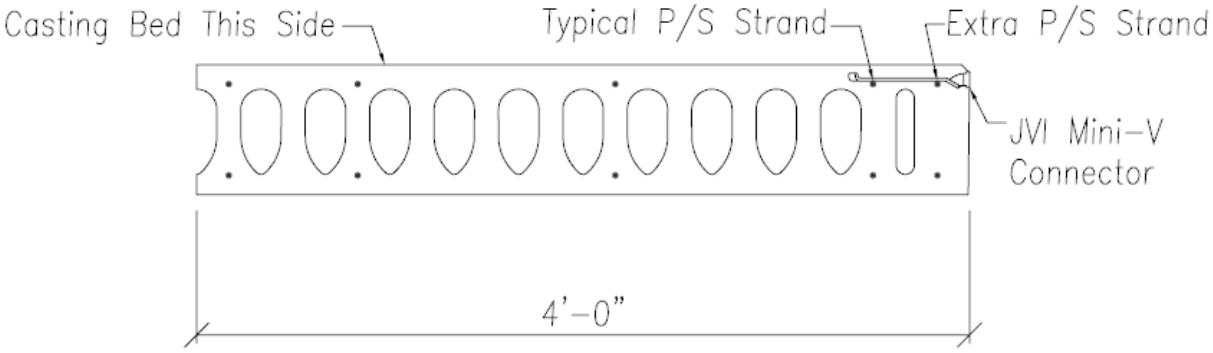
SPANCRETE MANUFACTURERS ASSOCIATION

RESEARCH NOTES

Combined Loading on JVI Mini-V Connectors Cast In Spancrete ® Hollowcore Wall Panels

When Spancrete Wall Panels are used as shear walls to resist lateral loads acting on a structure may be required that adjacent panels be connected together. For applications where the interior surfaces of the panels are exposed such as gymnasiums, it is desirable to conceal these connections in the wall panel joint. The JVI Mini-V connector is a readily available insert that will satisfy this condition.

The Spancrete Manufacturers' Association conducted tests of the JVI Mini-V connector to determine its capacity when cast in Spancrete Wall Panels. The inserts were cast in 4-foot wide test specimens (typical Spancrete Wall Panels are 8 foot wide), and tested in an inverted orientation as shown.



Test Specimen

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.

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RECOMMENDATIONS

1. The values tabulated are raw test values to which no factor of safety has been applied.
2. The cracking load should be used as the design capacity. Due to the tight clustering of the data, using the average load for the unidirectional tests is acceptable.
3. A strength reduction factor ø equal to 0.65 should be applied to the test value.
4. The calculated design forces must be multiplied by standard ACI and IBC load factors to generate ultimate loads for comparison.
5. If these connectors are used to support gravity loads (e.g. supporting a panel above a door opening), an additional overload factor is recommended.
6. When the connectors are used to join multiple panels for a shear wall (VQ/I), the overload factor is not required.

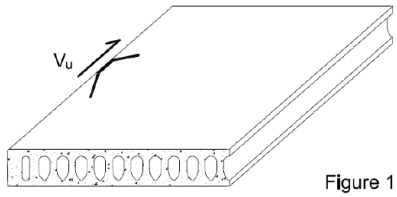

Figure 1

Table 1 Load Applied Parallel to the Panel Face

Test Number	Cracking		Maximum		Failure Mode
	Load (lbs)	Displacement (in)	Load (lbs)	Displacement (in)	
H-1	11800	0.027	12000	0.692	yield tension leg buckle compression leg
H-2	10700	0.016	11450	0.886	yield tension leg buckle compression leg
H-3	11700	0.013	11700	0.013	fracture tension leg buckle compression leg
H-4	12300	0.072	12300	0.072	fracture tension leg buckle compression leg
Average	**11625**		**11862**		
Low	**10700**		**11450**		

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 Eqypt
Ahram, Giza

MEXICO
ITISA
Mexico City, Mexico

Spancrete Noreste
Monterrey, Mexico

CROATIA
Mucić & 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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