Shear Test

May 5, 2015

REPORT NUMBER: **HETI-15-M500**

MANUFACTURER: PROJECT CLASSIC STRUCTURAL ENGINEERING
7318 Texas Trail, Boca Raton, Florida 33487

TEST LOCATION: Hurricane Engineering & Testing Inc.
6120 NW 97th Avenue, Doral, Florida, 33178

NOTIFICATION NUMBER: HETI14025 (MIAMI-DADE COUNTY, FLORIDA
LAB. CERTIFICATION No.: 10-1117.07 (MIAMI-DADE COUNTY, FLORIDA)
IAS. CERTIFICATION No.: TL-296 (ISO 17025-05)
FBC ORGANIZATION No: TST1691
FBPE Certificate of Authorization Number: 6905

PRODUCT: Composite Panels
(See Hurricane Engineering & Testing, Inc. marked Drawing).

PRODUCT SIZE: 51" wide x 161" long x 8 3/16" deep and 14 ½" high (12'-0" Span)

PRODUCT DESCRIPTION: 3500 psi Concrete Covered Steel Panel (Reference Material Tensile Test Report No. HETI-15-T305; Concrete Compression Test Report No. HETI-15-C101)

DRAWING NO.: No Cores: S9 by Project Classic Structural Engineering, dated 1/30/15
One Core: S10 by Project Classic Structural Engineering, dated 2/6/15
Two Cores: S11 by Project Classic Structural Engineering, dated 2/12/15
Three Cores: S12 by Project Classic Structural Engineering, dated 2/13/15

TEST WITNESSED BY: Syed Waqar Ali, Ph.D. (HETI)
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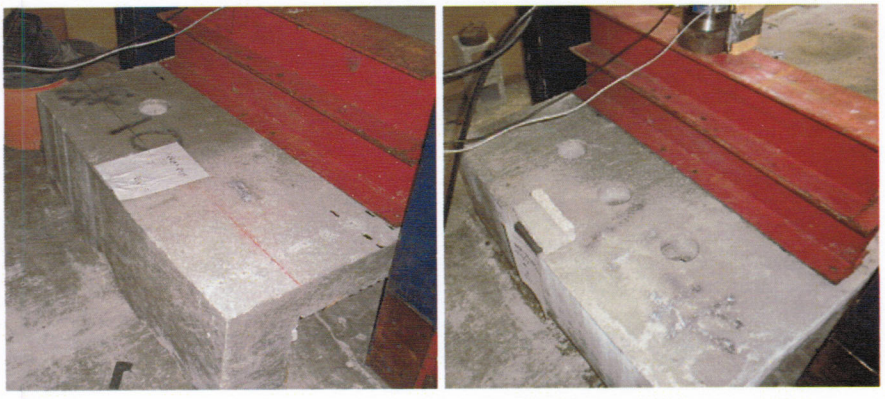
Mr. Rafael E. Droz-Seda, P.E. (HETI)



12'-0" Product Description

Each sample was constructed by attaching (2) separate panel halves on top of each other to create the hexagon shaped steel frame. The (2) panels were attached with (4) rows of (23) #10 x ¾" Hex Head Self Drilling Screws (HH SDS) located at 2 ¼", 6 ¼", 10 ¾", 14 ¾", 19 ¾", 26 ½", 33 ¼", 39 3/8", 47 ½", 56 ¼", 60 5/8", 68 1/8", 78 ¼", 89 1/8", 96", 105 3/8", 111", 117 1/8", 124", 129 1/8", 133 3/8", 137 7/8", and 141 ½" from the left end. Once the samples were constructed, a layer of 0.142" thick (6" x 6" square) steel lathing the size of the sample was laid on top as well as (3) #4 bent rebars 40" in length (length parallel to panel) which connected to a rebar end assembly using rebar tie wires. The rebar end assembly was comprised of (4) 24" long # 5 rebar and (3) #3 5" x 9" stirrups. The 24" rebar was tied to the inside of the (3) stirrups using rebar tie wire, which were located at the ends and center of the 24" rebar (See photo below). The rebar end assembly was laid into the bottom of a 51" wide x 8" high x 14 ½" deep form on each end. Once the sample was completely constructed, an average layer of 2.06" of 3500 psi concrete was poured on top of the finished double panel sample.

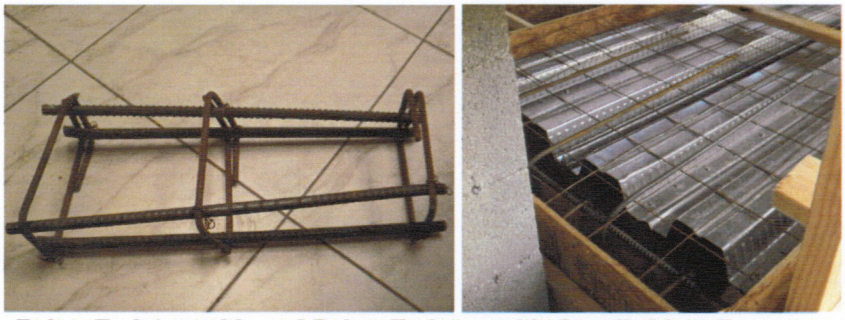
Individual Panel Size: 25 ½" w x 144" long x 3 1/16" deep

Double Finished Panel Size: 50 3/8" w x 144" long x 6 1/8" deep

Composite Finished Panel Size: 51" w x 161" long x 8 3/16" deep x 14 ½" high

Corrugated Panel Thickness: 18ga (0.048")

Concrete: 3500 psi

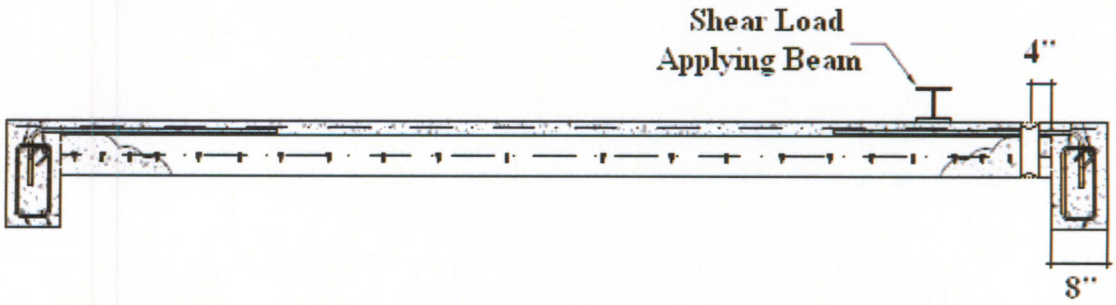


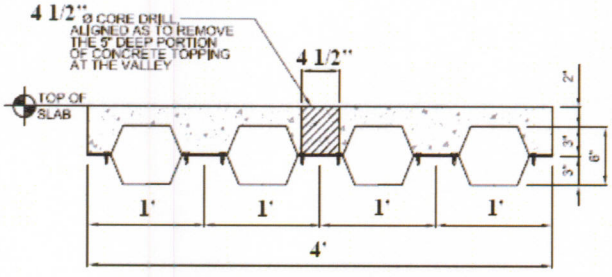
Rebar End Assembly and Rebar End Assembly Installed into Form

Note*: All composite panels manufactured with concrete resulted in a partial filling of the hexagonal cavity at each end of the panel. The minimum full hexagon fill is 8" and the maximum full fill of the cavity was 10". After the full fill of the cavity, the concrete tapers off to zero in 10" to 24". See photo below.

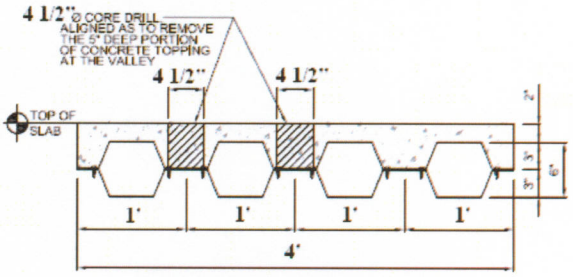
Test Procedure: 4 ½" diameter cores were removed from the samples tested below. One, two, or three cores were removed at 12" away from the edge of the sample as seen in the diagrams below. The shear load was applied by using a hydraulic pump, ram, load cell, and by using a 6 ½" x 8" I-beam the width of the sample to evenly apply the load across the sample.

Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT, HETI-0172).

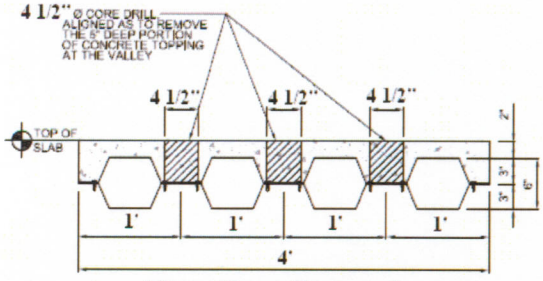




One Core Removed



Two Cores Removed



Three Cores Removed

TEST RESULTS

HETI-15-M500

(Test Date: January 30, 2015)

Composite Sample without Holes. Shear Point at 24" from end. 18 Gauge Steel.

Sample No.	Load (lbs)	Average Center Deflection (in)	Failure Mode
1	27,670	0.90	Shear induced diagonal tension cracks

HETI-15-M501

(Test Date: February 6, 2015)

Composite Sample with One Hole. Shear Point at 24" from end. 18 Gauge Steel.

Sample No.	Load (lbs)	Average Center Deflection (in)	Failure Mode
1	25,550	0.83	Shear induced diagonal tension cracks

HETI-15-M505

(Test Date: February 12, 2015)

Composite Sample without Holes. Shear Point at 24" from end. 18 Gauge Steel.

Sample No.	Load (lbs)	Average Center Deflection (in)	Failure Mode
1	22,914	0.84	Shear induced diagonal tension cracks

TEST RESULTS

HETI-15-M506

(Test Date: February 12, 2015)

Composite Sample with Two Holes. Shear Point at 24" from end. 18 Gauge Steel.

Sample No.	Load (lbs)	Average Center Deflection (in)	Failure Mode
1	20,355	0.64	Shear induced diagonal tension cracks

HETI-15-M507

(Test Date: February 13, 2015)

Composite Sample without Holes. Shear Point at 24" from end. 18 Gauge Steel.

Sample No.	Load (lbs)	Average Center Deflection (in)	Failure Mode
1	20,499	0.55	Shear induced diagonal tension cracks

HETI-15-M508

(Test Date: February 13, 2015)

Composite Sample with Three Holes. Shear Point at 24" from end. 18 Gauge Steel.

Sample No.	Load (lbs)	Average Center Deflection (in)	Failure Mode
1	22,265	0.71	Shear induced diagonal tension cracks

Conclusion

The samples were structurally intact at the conclusion of this test.

NOTE: The above results were obtained using the designated test methods that indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

The Hurricane Engineering & Testing, Inc., does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the Hurricane Engineering & Testing, Inc. Hurricane Engineering & Testing, Inc., is not owned, operated or controlled by any company manufacturing or distributing products it test or labels.

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