Gravity Load Test

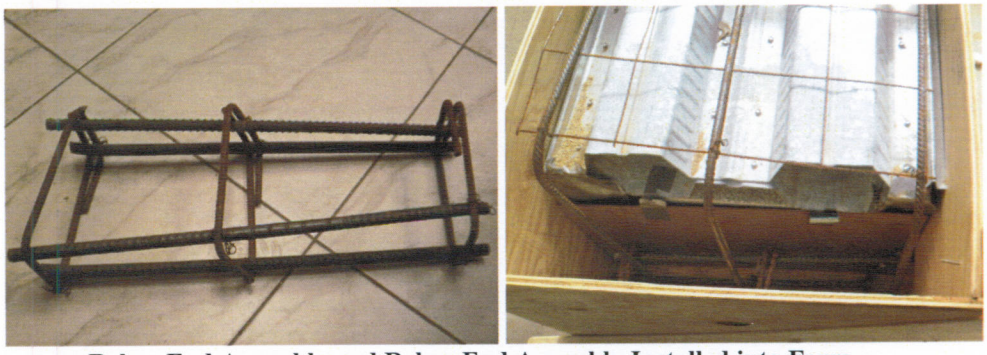
(Section 1710 of IBC and Florida Building Code)

May 5, 2015

REPORT NUMBER:	**HETI-15-5023**
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:	Test # 13: 27" wide x 301 ½" long x 8 3/16" deep x 14 ½" high (23'-8" Span) Test # 14: 27" wide x 264 ¼" long x 8 3/16" deep x 14 ½" high (20'-8" Span) Test # 15: 27" wide x 384 ¼" long x 8 3/16" deep x 14 ½" high (30'-8" Span)
PRODUCT DESCRIPTION:	3500 psi Concrete Covered Steel Panel (Reference Material Tensile Test Report No. HETI-15-T303, HETI-15-T304, HETI-15-T305; Concrete Compression Test Report No. HETI-15-C101)
DRAWING NO.:	Test # 13: S14 by Project Classic Structural Engineering, dated 2/17/15 Test # 14: S13 by Project Classic Structural Engineering, dated 2/18/15 Test # 15: S15 by Project Classic Structural Engineering, dated 2/20/15
DESIGN LOADS (psf):	**+80**
TEST WITNESSED BY:	Syed Waqar Ali, Ph.D. (HETI) Nasreen K. Ali, E.I. (HETI) Eugenio Rivera (HETI) Mr. Rafael E. Droz-Seda, P.E. (HETI)

20'-8" Product Description

Each sample was constructed by attaching (2) separate panel halves on top of each other to create the steel frame. The panels were setup to create a 1 5/8" camber at the center. The (2) panels were attached with (4) rows of (31) #10 x ¾" Hex Head Self Drilling Screws (HH SDS) located at 1 ½", 6 5/8", 12 ¾", 19 ½", 24 1/8", 30 5/8", 37", 44 ¾", 52 ¼", 64 5/8", 75 5/8", 85", 96 1/8", 104 ½", 111 ½", 124", 132 ½", 142 ¼", 151 5/8", 162 ½", 172 ¼", 182 ¾", 193 ¼", 201 3/8", 209 ½", 216 3/8", 222 ½", 228 ¾", 235 1/8", 240 ½", and 245 5/8" from the left end. Once the samples were constructed, a layer of 01.42" thick (6" x 6" square) steel lathing the size of the sample was laid on top as well as (3) #4 rebars the length of the 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 27" wide x 14 ½" high x 8" 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 single panel sample.



Rebar End Assembly and Rebar End Assembly Installed into Form

Individual Panel Size:	25 ½" w x 248 ½" long x 3 1/16" deep
Single Finished Panel Size:	27" w x 248 ½" long x 6 1/8" deep
Composite Finished Panel Size:	27" w x 264 ¼" long x 8 3/16" deep x 14 ½" high
Thickness of All Panels:	16ga (0.060" with coating)
Concrete:	3500 psi
Test Procedure:	Section 1710 of IBC and Florida Building Code

23'-8" Product Description

Each sample was constructed by attaching (2) separate panel halves on top of each other to create the steel frame. The panels were setup to create a 1 5/8" camber at the center. The (2) panels were attached with (4) rows of (39) #10 x ¾" Hex Head Self Drilling Screws (HH SDS) located at 2", 6", 9 ½", 14 ¼", 20 ½", 22 3/8", 26 3/8", 32 ½", 39", 47", 55 ½", 61", 65 ¾", 74 ¼", 84 ¼", 95 ¼", 105 ¾", 114 ¾", 125", 134 ¾", 145 ¼", 155 ½", 165 ¾", 175 ½", 179", 189 ½", 199", 209", 218 ¾", 229", 238", 245 ¾", 252", 258 ¼", 264 ¼", 270", 274", 277 ½", and 282" from the left end. Next, an 18 gauge x 24 1/8" x 284 ¼" flat galvanized steel sheet was placed on top of the panel and was attached using (4) rows of (37) # 10 x ¾" HH SDS located at 1 5/8", 5 ¾", 9 ¼", 12 ¾", 19 1/8", 25", 33", 41", 49 5/8", 59 3/8", 69", 78 ¼", 88 3/8", 99 1/8", 109", 118 5/8", 129", 139", 142 ½", 148 ¾", 157 ½", 167 ½", 179 ¼", 189 ¾", 200", 209", 220", 230 ¾", 239 3/8", 246 7/8", 253", 258 ¾", 265", 269 ¾", 275", 278 ¾", and 282 ½" from the left end. Once the samples were constructed, a layer of 01.42" thick (6" x 6" square) steel lathing the size of the sample was laid on top as well as (3) #4 rebars the length of the 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 (as in

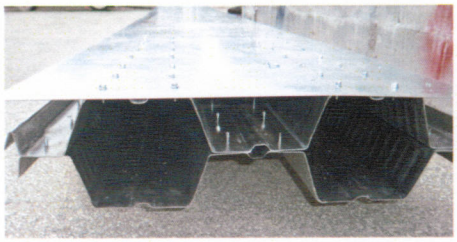
previous sample). The rebar end assembly was laid into the bottom of a 27" wide x 14 ½" high x 8" deep form on each end. Once the sample was completely constructed, an average layer of 2.06" of 3500 psi concrete was poured on top of the finished single panel sample.

Individual Panel Size:	25 ½" w x 284 ½" long x 3 1/16" deep
Single Finished Panel Size:	27" w x 284 ½" long x 6 1/8" deep
Composite Finished Panel Size:	27" w x 301 ½" long x 6 1/8" deep
Thickness of All Panels:	18ga (0.048" with coating)
Reinforcement:	(1) 18ga (0.048" with coating) galv. steel flat sheet (24 1/8" w x 284 ¼")
Concrete:	3500 psi
Test Procedure:	Section 1710 of IBC and Florida Building Code

30'-8" Product Description

Each sample was constructed by attaching (2) separate panel halves on top of each other to create the steel frame. The panels were setup to create a 1 5/8" camber at the center. The (2) panels were attached with (4) rows of (52) #10 x ¾" Hex Head Self Drilling Screws (HH SDS) located at 2", 6 ½", 10 ½", 15", 21", 26 ¼", 32", 39", 47", 54 ½", 66", 74", 81 ¼", 88 1/8", 94", 100 ½", 106 ¾", 110 ½", 114", 118", 125", 135 ½", 145 ½", 155 ¼", 165 ¼", 174 ¾", 185 ¼", 193 ½", 198 ¼", 202 ¼", 208 ¼", 214 ¼", 220", 227 ½", 235 ¼", 243 ½", 253", 263", 273 ¼", 283 ¾", 293 3/8", 303 3/8", 314 3/8", 322 ¼", 329", 336 3/8", 342 ½", 348 ¼", 354 ¼", 358", 362 3/8", and 366 ¼" from the left end. Next, (2) 18 gauge x 24 1/8" x 368 ¼" flat galvanized steel sheets were placed on top of the panel and were attached using (4) rows of (45) # 10 x ¾" HH SDS located at 2", 5 ½", 14", 21", 27", 32 ½", 40 ¼", 46 ¾", 55 ¼", 65 ½", 75 ½", 86", 95 ½", 105", 115 ½", 125 ½", 135", 145 ¼", 156", 166 ¼", 175 ½", 184 ¾", 193", 203 5/8", 214 ½", 224 ½", 234 ¼", 243", 254 ¾", 264", 274", 284 ½", 295 ¼", 303 ¼", 315 ½", 323 ½", 330 ½", 336 ½", 342 ¾", 349 ½", 355", 359", 363 ¼", and 366" from the left end. Once the samples were constructed, a layer of 01.42" thick (6" x 6" square) steel lathing the size of the sample was laid on top as well as (3) #4 rebars the length of the 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 (as in previous sample). The rebar end assembly was laid into the bottom of a 27" wide x 14 ½" high x 8" 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 single panel sample.

Individual Panel Size:	25 ½" w x 368 ½" long x 3 1/16" deep
Single Finished Panel Size:	27" w x 368 ½" long x 6 1/8" deep
Composite Finished Panel Size:	27" w x 384 ¼" long x 6 1/8" deep
Thickness of All Panels:	16ga (0.048" with coating)
Reinforcement:	(2) 18ga (0.048" with coating) galv. steel flat sheet (24 1/8" w x 368 ¼")
Concrete:	3500 psi
Test Procedure:	Section 1710 of IBC and Florida Building Code



Sample showing connection of (1) or (2) galv. flat steel sheets to the finished single panel for 23'-8" and 30'-8" samples. (Sample was flipped over to show connection. Flat sheet is installed on bottom of sample.)

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 RESULTS

HETI-15-5024 (Span: 20'-8")

Sample started on 2/17/15 3:18 P.M. Stopped on 2/18/15 at 3:18 P.M.

Sample No.	Pressure (psf)	Unloaded Deflection At Start (in)	Loaded Deflection At Start (in)	Loaded Deflection At End (in)	Unloaded Deflection At End (in)	Set (in)	Recovery (%)	Duration (hrs)
1	80	0.00	0.53	0.55	0.00	0.00	100	24

HETI-15-5023 (Span 23'-8")

Sample started on 2/16/15 2:42 P.M. Stopped on 2/17/15 at 2:42 P.M.

Sample No.	Pressure (psf)	Unloaded Deflection At Start (in)	Loaded Deflection At Start (in)	Loaded Deflection At End (in)	Unloaded Deflection At End (in)	Set (in)	Recovery (%)	Duration (hrs)
1	80	0.00	0.78	0.85	0.00	0.00	100	24

HETI-15-5025 (Span: 30'-8")

Sample started on 2/18/15 4:26 PM. Stopped on 2/19/15 at 4:26 P.M.

Sample No.	Pressure (psf)	Unloaded Deflection At Start (in)	Loaded Deflection At Start (in)	Loaded Deflection At End (in)	Unloaded Deflection At End (in)	Set (in)	Recovery (%)	Duration (hrs)
1	80	0.00	1.37	1.42	0.00	0.00	100	24

The initial and final readings were taken at the start and stop time of the test. The Deflection and set were obtained by subtracting Final Position from Initial Position, and set was obtained as the difference between Initial unloaded and final unloaded position.

Conclusion

The samples were structurally intact at the conclusion of this test. The 24 hours Gravity Load Test was performed as per Section 1710 of IBC and Florida Building Code.

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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