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REPORT OF LOAD TESTING

PROJECT:

VERSACORE PLUS LIGHT
WALL PANEL TESTING

REPORTED TO:

FABCON
6111 WEST HIGHWAY 13
SAVAGE, MN 55378

ATTN: JASON HENSLEY

AET JOB NO: 05-02765

DATE: OCTOBER 4, 2006

INTRODUCTION

This report presents the results of the load testing conducted at the Fabcon Headquarters in Savage, Minnesota. We understand the VersaCore Plus light panel contains foam inserts positioned between the top and bottom strand and span between two foam billets. The scope of our work was limited to the following:

1. Observing flexural bearing and shear tests on two insulated core concrete wall panels.
2. Observe a cycle test and review research and development data for the failure test of the same panel.
3. Preparing a written report providing our opinion.

Our work was requested and authorized by Mr. Jason Hensley of Fabcon.

CONCLUSIONS

Based on the results of our testing and experience, it is our opinion the following conclusions are appropriate :

1. The panel deflection at design flexure load was small (3/16") and no cracks formed.
2. The panel was strong in flexure and fails at nearly 7 times the design load.
3. The panel was strong in shear with a failure load of 18,540 lbs.
4. The panel performed well under cyclic flexural loading. The panel withstood 10,000 cycles of load without deterioration.

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VERSACORE PLUS LIGHT FLEX TEST

On August 2, 2006, AET observed the VersaCore Plus Light 8" thick panel flex test. The panel measured 29' 11 1/4" long, 8' wide, and 8" thick. It was supported on each end with steel supports 29' 4 1/2" apart as a load was applied at two locations using square structural steel tubes that were each 1 1/2' away from the centerline of the panel. A string line and ruler were used to measure the deflection of the panels. The source of the load was a hydraulic cylinder extended by a hand pump actuator. Pressure readings were taken at each 1/4" increment of panel deflection. The panel was loaded to the design load and the deflection was measured. The load was then removed and the deflection was again measured. The panel was then loaded to design once more and then the loads were recorded at 1/4" deflection intervals while visually inspecting structural cracks until failure. The panel's concrete strength was 7624 psi, and the strand pattern was 6/6.

RESULTS

The deflection at the design load was 3/16" and no visible cracking was observed. The flexural load capacity of the panel well exceeds its maximum design load. The load on the panel at failure was 16,480 pounds (with 10 1/4" deflection), which is approximately 7 times the design load of 2,575 pounds. The following is a deflection chart of the test panel.

Pressure (psi)	Load (lbs)	Displacement (in.)	Notes
0	0	0	
500	2575	3/16	
0	0	0	
500	2575	3/16	
800	4120	1/4	
1700	8755	1/2	1st crack
1700	8755	3/4	1 more crack
1700	8755	1	1 more crack
1900	9785	1-1/4	1 more crack
2100	10815	1-1/2	
2200	11,330	1-3/4	4 more cracks
2200	11,330	2	1 more crack
2300	11,845	2-1/4	
2400	12,360	2-1/2	
2500	12,875	2-3/4	1 more crack
2500	12,875	3	

Pressure (psi)	Load (lbs)	Displacement (in.)	Notes
2600	13,390	3-1/4	
2700	13,905	3-1/2	1 more crack
2700	13,905	3-3/4	Cracking no longer recorded
2800	14,420	4	
2900	14,935	4-1/4	
3000	15,450	4-1/2	
3000	15,450	4-3/4	
2700	13,905	4-3/4	Blocked cylinder
2700	13,905	5	
2700	13,905	5-1/4	
2800	14,420	5-1/2	
2800	14,420	5-3/4	
2900	14,935	6	
2900	14,935	6	
2900	14,935	6-1/4	
2950	15,193	6-3/4	
3000	15,450	7	
3000	15,450	7-1/4	
3100	15,965	7-1/2	
3100	15,965	7-3/4	
3100	15,965	8	
3200	16,480	8-1/4	
3200	16,480	8-1/2	
3300	16,995	8-3/4	
3300	16,995	9	
3000	15,450	9	Blocked cylinder
3000	15,450	9-1/4	
3100	15,965	9-1/2	
3200	16,480	9-3/4	
3200	16,480	10	
3200	16,480	10-1/4	Failure

VERSACORE PLUS SHEAR TEST

On August 2, 2006, AET observed the VersaCore Plus Light 8" thick panel shear test. The panel measured 9' 1 1/4" long, 34 1/4" wide, and 8 1/2" thick. It was supported with steel supports as a load was applied at one foot from the edge of the panel until failure. The pressure reading at shear failure was recorded. The source of the load was a hydraulic cylinder extended by a hand pump actuator. The panel's concrete strength was 7624 psi, and the strand pattern was 6/6.

The shear failure load was 18,540 lb. and resulted in a crack that went through the panel at a 45-degree angle.

VERSACORE PLUS CYCLE TEST

AET periodically observed the cycle testing performed at the Fabcon facility in Savage. We reviewed the test data for this VersaCore Plus Light 8" thick panel load test. The panel was an 8" thick panel that is 30' long and 8' wide. The panel was supported at both ends and a load was applied to the middle of the panel. The distance between the supports during testing was 29'. The load was applied using a hydraulic cylinder. The deflection was measured at 1/4" intervals and the load corresponding to the specific deflection was recorded.

The panel underwent cycle testing of over 10,000 cycles of up to 1/2" deflection. The panel's concrete strength was greater than 6700 psi, and the strand pattern was 7/7.

A motorized cam setup was used to apply the deflections at midpoint. The cycle testing ran for at least 70 hours. The deflection cycle of the panel took 10 seconds to complete.

After the cycle testing was completed, a load test was performed on the panel to determine if the 10,000 cycles had lowered the capacity of panel. The panel was loaded to the design load and the deflection was measured. The load was then removed and the deflection was again measured. The panel was then loaded to design again and then the loads are recorded at 1/4" deflection intervals until failure.

RESULTS

The VersaCore Plus panel did not exhibit any signs of failure after the completion of the cycle testing. The panel did have two hairline transverse cracks at mid-length of panel.

The deflection of the panel at the design load of 2575 lbs. was 3/16". The panel started to form cracks at 7725 lbs. The cracking happened at locations that were predictable at specific locations. The VersaCore Plus Light panel failed at 10-1/4" deflection with 17,510 lbs. of load at the center.

The panel performed very well with surpassing about 7 times the design load. See attached sheet for additional information.

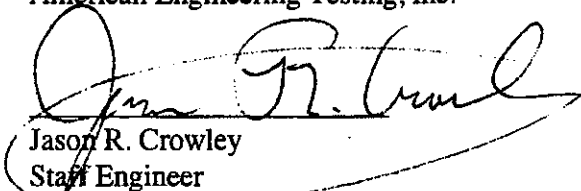
LIMITATIONS

Our work scope was limited to observations of the Flex test, Shear test, and Cycle testing performed at the Fabcon Facility in Savage, MN. The cycle load test was not observed by AET. Our comments are based solely on the corresponding Fabcon report. AET did not perform any of the testing. All testing was performed by Fabcon. Our work scope did not include a structural review of any of the VersaCore Plus Light product line. Based on the witnessed and non-witnessed tests, AET feels that the testing methods and results are adequate to determine the structural properties of this type of panel).

REMARKS

If you have any questions regarding this report, or if we can be of further assistance to you, please feel free to contact us.

Report Prepared By: -
American Engineering Testing, Inc.



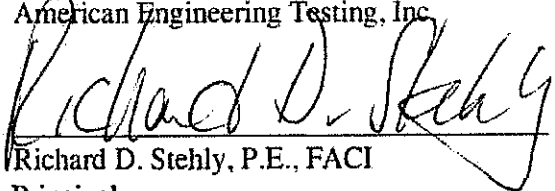
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