

RAMTECH LABORATORIES, INC.

14104 ORANGE AVENUE, PARAMOUNT, CALIFORNIA 90723-2019 • TELEPHONE (562) 633-4824 • FAX (562) 633-4128

VERTICAL LOAD TESTS
ON VERO 1 ½" PLB™ DECKING
WITH SIDELAPS SECURED WITH
THE VERO PUNCHLOK™ TOOL

PREPARED FOR:

JEFF MARTIN
VERCO MANUFACTURING, COMPANY
2450 PERALTA BOULEVARD, SUITE 110
FREMONT, CALIFORNIA 94536

LABORATORY NUMBER: 11838A

DATE ISSUED: JANUARY 4, 2002

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ENGINEERING • MATERIALS TESTING

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Mr. Jeff Martin
VERCO MANUFACTURING COMPANY
2450 Peralta Blvd., Suite 110
Fremont, CA 94536

January 4, 2002

Laboratory Number: 11838A

RE: Vertical Load Tests on Verco 1 1/2" PLB™ Decking
With Side Laps Secured With The VERCO PUNCHLOK™ TOOL

Dear Mr. Martin:

In accordance with your request, Ramtech Laboratories, Inc. has conducted a vertical load test on your type PLB™ decking material at your facility located in Antioch, California. The testing was conducted on May 11, 2001 and was performed to determine the vertical load carrying capacity when the decking side laps were secured with your new VERCO PUNCHLOK™ TOOL. Also to determine if the VERCO SIDELAP CONNECTION (VSC) made with the PUNCHLOK™ TOOL, would become disengaged, as a superimposed vertical load was applied to only the center 3' panel, of the (9' x 10') decking assembly. This procedure was selected to simulate concrete being poured on an adjacent panel, with one panel being loaded and the other having no concrete or superimposed load.

Test Assembly:

The 20-gauge steel, PLB™ decking was secured to a structural steel frame with four (4) arc spot welds at each end. (i.e. a 36/4 weld pattern) Three sections of decking, which were 3 ft. wide by 10'-4" long, were welded to the test frame and the side-laps were secured with your VERCO PUNCHLOK™ TOOL. The overall assembly was therefore nine feet wide and had a 10-foot free span. The side-lap punches were 2 ft. on center, 4 per span. The applied load was distributed in a manner to achieve a uniform load application over the 30 sq. ft. center deck section. (See Fig. No. 1)

Page 1 of 3

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VERCO MANUFACTURING COMPANY
Laboratory Number: 11838A
Page 2 of 3

January 4, 2002

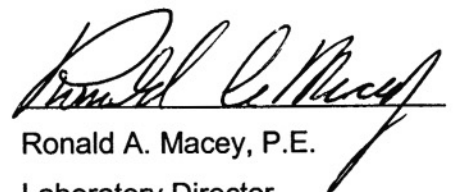
A uniform load was applied to test the deck assembly by the means of adding water to steel drums which were placed only on top of the center 3' wide test area. The two outside decking sections were not loaded therefore; the center section load would be transferred to the outer deck section only through the 24" on center VECO SIDELAP CONNECTIONS that were at the connecting side-lap.

Incremental load deflection data was measured, as the test assembly was loaded. The deflection was recorded at two (2) locations, one on each side of the side-lap joint. The water load was measured by volume and the deflections were measured with dial micrometers.

The results and observations are as detailed in, Table 1.

Respectfully Submitted

Ramtech Laboratories, Inc.


Ronald A. Macey, P.E.
Laboratory Director

RAMTECH LABORATORIES, INC.

Verco Manufacturing Company

Laboratory Number : 11838A

Page 3 of 3

TABLE NO. 1

Total Load in Pounds	Load in Pounds Per Square Foot	Deflection in Inches at Side-Lap		Remarks and Observations
		Loaded Side	No Load Side	
140	4.7	0.000	0.000	Barrel deadweight pre-load
640	21.3	0.221	0.199	
1140	38.0	0.455	0.428	
1640	50.7	0.745	0.708	Load equivalent to 4.2" of concrete
2140	71.3	1.135	1.093	
2640	88.0	1.590	1.545	Load equivalent to 7.3" of concrete
3140	104.7	2.065	2.011	End of dial indicator travel
3640	121.3	2.6	-----	Approximate deflection by tape measure
				Load equivalent to 8.6" of concrete
4140	138.0	3.2	-----	Load equivalent to 11.4" of concrete

Notes:

1. The test assembly was held under load for 15-minutes at 138 pounds per square foot.
2. Additional load could not be applied, due to the instability of the stacked drums.
3. While under load and after the test, there were no signs of disengagement or slippage of any type on the VERCO SIDELAP CONNECTIONS made with THE PUNCHLOK™ TOOL.

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APPENDIX 1

RAMTECH LABORATORIES, INC.

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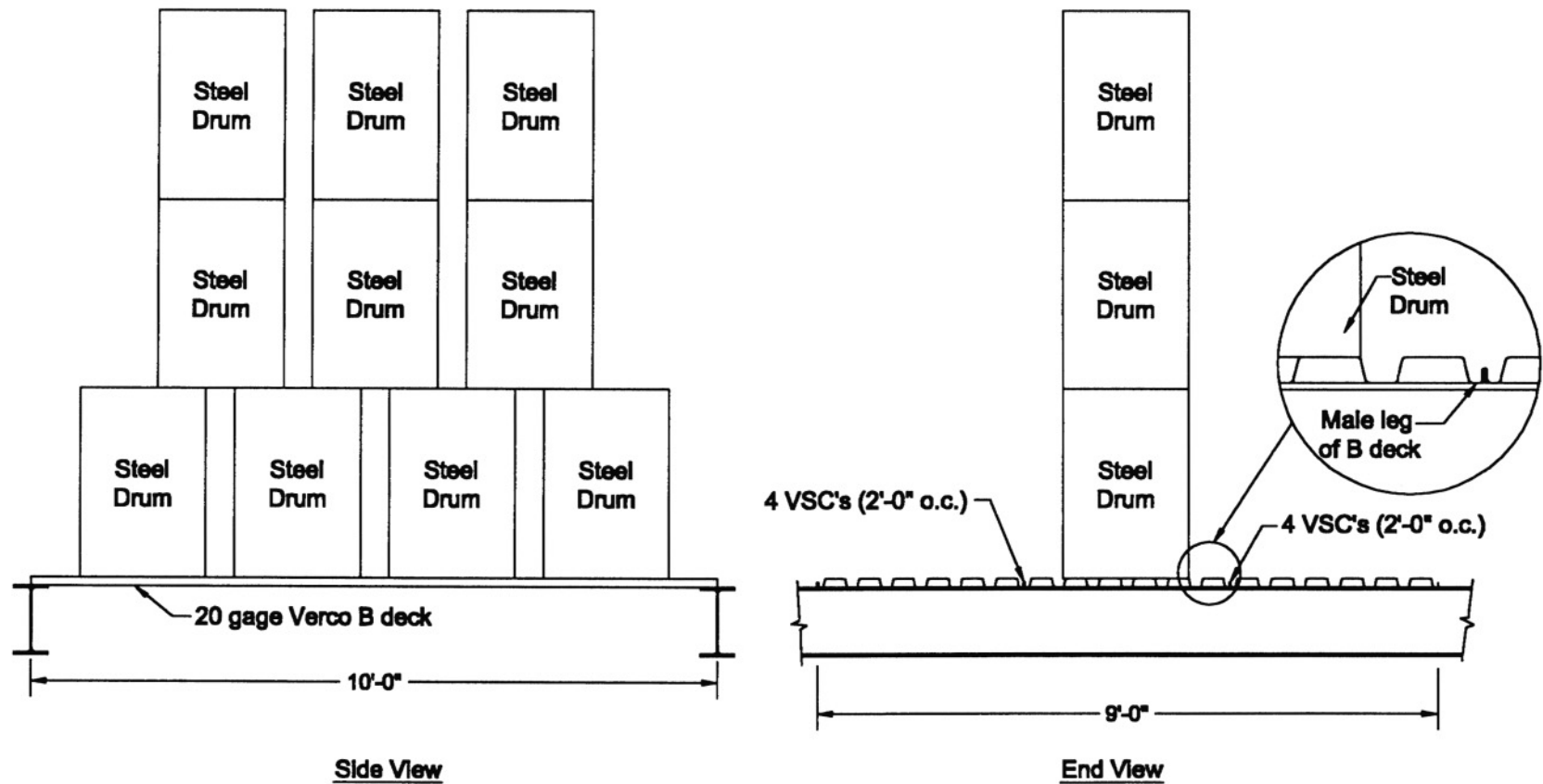


Figure No. 1

NOTE: VSC = Verco Sidelap Connection made with the PunchLok™ tool.

Verco Manufacturing Co.
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Ramtech Laboratories, Inc.



Photo showing the test deck at the load of 120 Lbs./Sq.ft. Note the beginning of compression buckling on the top flanges of the adjacent non loaded sheet of decking. This demonstrates the high load transfer capabilities of the PUNCHLOK (tm) system.



Photo showing the test deck assembly after completion of the load test. Note the compression buckling of the top flanges, which is present on both sides of the side-lap joint. This shows the excellent ability of the PUNCHLOK (tm) to transfer load across the side-laps. At no time during the test or after the test were there any signs of VSC disengagement or slippage.