



**Intertek Testing Services**  
ETL SEMKO

**REPORT OF**

**FREEZE / THAW CYCLING  
TRANSVERSE LOAD  
ALKALI RESISTANCE  
WEIGHT**

**CONDUCTED ON**

**'ULTRA-LATH™' STUCCO LATH**

**FOR**

**PLASTIC COMPONENTS, INC.  
9051 NW 97<sup>th</sup> TERRACE  
MIAMI, FL 33178**

**REPORT PREPARED BY**

**INTERTEK TESTING SERVICES NA LTD.  
BUILDING PRODUCTS DIVISION  
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COQUITLAM, BC V3K 4X9**

**PROJECT NUMBER: 3030551**

**DATE: JANUARY 29, 2003**



Warnock Hersey



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## PREFACE

All services undertaken are subject to the following general policy:

1. This report is for the exclusive use of Intertek Testing Services NA Ltd.'s (ITS's) client and is provided pursuant to the agreement between ITS and its client. ITS's responsibility and liability are limited to the terms and conditions of the agreement. ITS assume no liability to any party, other than to the client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report.
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3. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product or service is or has ever been under an ITS certification program.



**TEST PROGRAM – continued**

**B. Transverse Loading (Comparison testing)**

24 panels, with an outside dimension of 4' x 4', were constructed using 2" x 4" nominal lumber. The frames consisted of single top and bottom plates with 4 studs nailed perpendicular between them. The center 2 studs were spaced 16" O.C. Half inch thick drywall was then applied to each frame. Building paper, lath and stucco was applied as per accepted application practices in the following combinations.

- 6 Panels using 'Highland One Coat'™ Stucco on ULTRA-LATH™
- 6 Panels using 'Highland One Coat'™ Stucco on ICBO accepted 1" Woven Wire Lath
- 6 Panels using Journeyman Stucco Mix ("Cement) on ULTRA-LATH™
- 6 Panels using Journeyman Stucco Mix (Cement) on ICBO accepted 1" Woven Wire Lath

All stucco was applied to a thickness of ½" and all panels were allowed to cure for a minimum of 28 days prior to being tested.

Three panels from each of the 4 combinations were tested under Positive Load and the other 3 were tested under Negative Load.

The tests consisted of pressurizing the panels from one side or the other to simulate either Positive and Negative wind loads. Deflections were recorded in the center of each of the partitioned sections of the stucco panels. The wind loading pressures were started at 30 psf and increased in increments of 10 psf. The pressures were held for 5 minutes after each pressure increase.

Graphs of the Pressures v/s Average Deflections were produced and overlaid so that the performance of the ULTRA-LATH™ could be visually compared to that of the ICBO Approved 1" Woven Wire Fabric. See Appendix A for details.

Equipment:       Omega 0-10 psi pressure transducer # D 2667  
                      LVDT # D 2668  
                      LVDT # D 2676  
                      LVDT # D 2677

**C. Alkali Resistance (ASTM E 2098-00)**

Samples were prepared and tested as per ASTM E 2098-00.

Exception: Because each weave of the material stretches extensively, and in succession, prior to any of them breaking, the highest value reached prior to the first load drop was used as the breaking value for this test. Results are reported in the form of Conditioned value as a percentage of Unconditioned values.

**D. Weight Determination**

Three 12" x 12" samples were cut from random areas throughout the length of the submitted material and weighed. The average of the 3 weights were used to calculate the weight per 1000 square feet.

**TEST RESULTS**

**A. Freeze/Thaw (AC 11 sect. 5.4)**

The test results below are based on 5 Highland and 5 Journeyman samples with 6" x 6" exposed surface areas. Samples were cycled 10 times through:

- 8 hrs @ 120°F (49°C) in air
- 8 hrs @ 70°F to 80°F (21°C to 27°C) in water
- 16 hrs @ -20°F (-29°C) in air

Sample Numbers	Requirement (Minimum)	Observation Post cycling	Pass/Fail
Highland One Coat	No cracking, checking or crazing	No cracking, checking or crazing	Pass
Journeyman Mix	No cracking, checking or crazing	No cracking, checking or crazing	Pass

**B. Transverse Loading (Comparison testing)**

Results of the tests are best interpreted utilizing visual comparisons as provided by the 8 graphs included in Appendix A. Because of the physical variations between the center and outer panes of the panels, the values for each are recorded separately. The graphs represent the following:

Graph #	Wind Load Type	Stucco Type	Pane(s)
1	Negative	Highland™	Center
2	Negative	Highland™	Outer
3	Negative	Cement	Center
4	Negative	Cement	Outer
5	Positive	Highland™	Center
6	Positive	Highland™	Outer
7	Positive	Cement	Center
8	Positive	Cement	Outer

**C. Alkali Resistance (ASTM E 2098-00)**

Samples were prepared as per ASTM E 2098-00.

Sample Orientation	Cross Machine Direction	Machine Direction
% Diff. (Cond/Uncond)	96.1%	100.5%

See Appendix B for details.

**D. Weight Determination**

Average of three (3) samples was found to be 145 lbs per 1000 square feet.

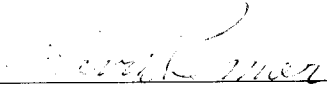
See Appendix C for details.

**CONCLUSION**


Tests conducted on the ULTRA-LATH™ product, submitted by Plastic Components, pass ICBO's AC11 section 5.4 requirements for Freeze/Thaw cycling. Since performance requirements are not available for this new product, we are only reporting the results for Alkali Resistance and Weight Determination. Transverse Load test results are reported for comparison with results of ICBO Approved material tested under same conditions.

**INTERTEK TESTING SERVICES NA LTD.  
Warnock Hersey**

Reported by:

  
\_\_\_\_\_  
Kevin Penner  
Technician, Construction Products

Reviewed by:

  
\_\_\_\_\_  
Cam Robinson, P.Eng.  
Manager, Construction Products

KP/lrh

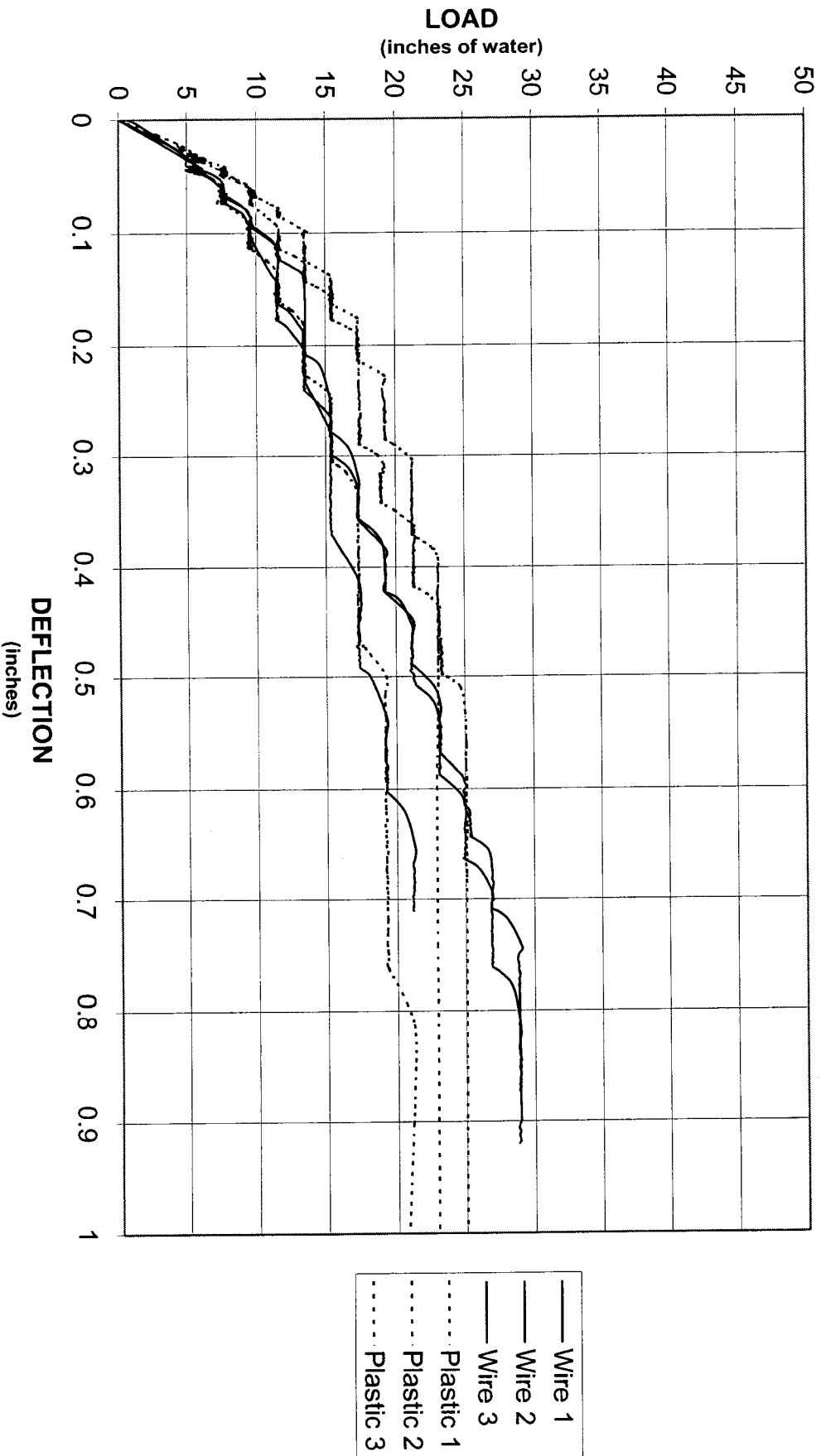
**APPENDIX A**  
**(Transverse Load Results – 8 pages)**





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NEGATIVE WIND LOAD  
HIGHLAND STUCCO  
CENTER PANE



Plastic Components  
Project # 3030551  
Technician:

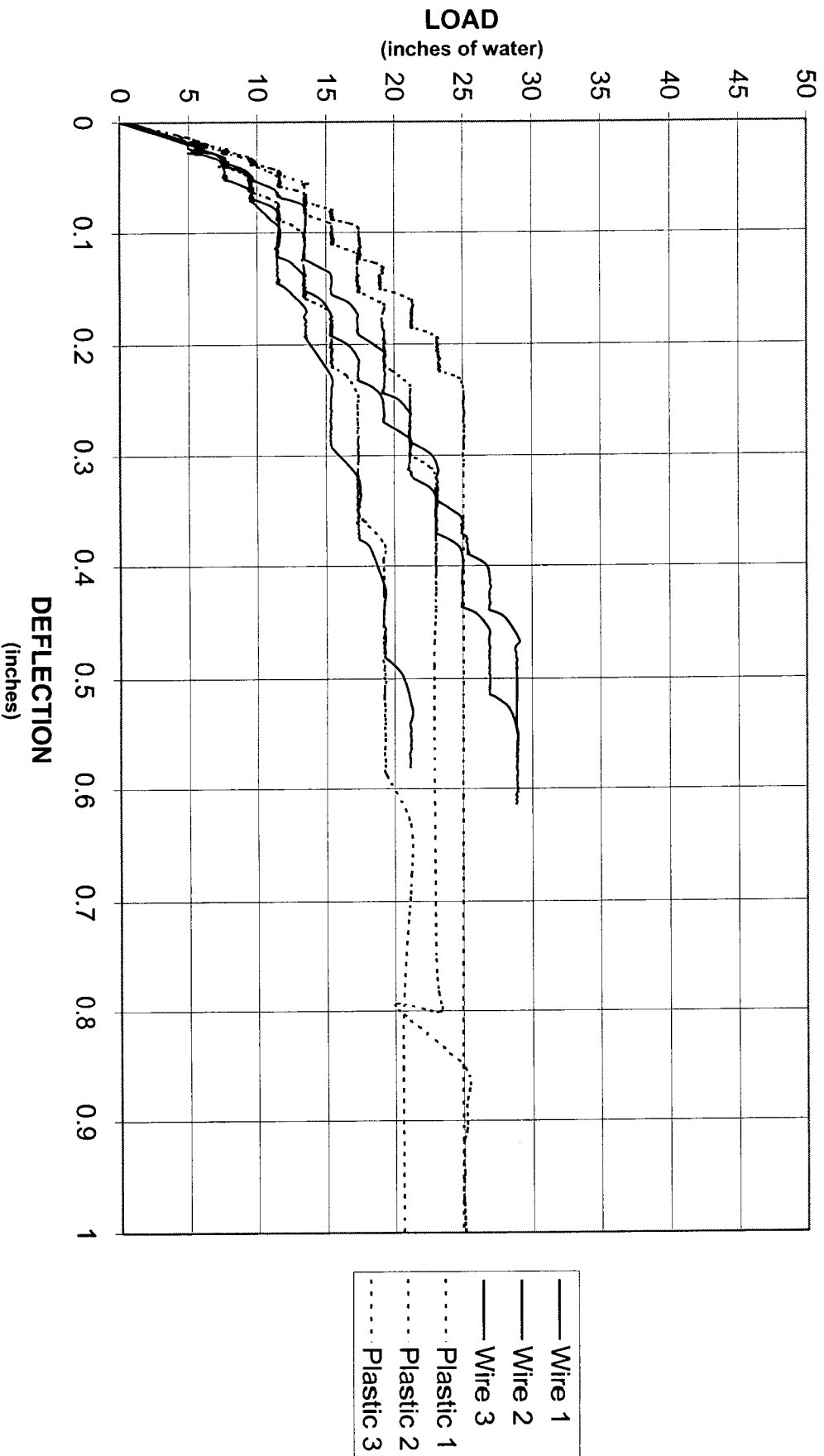
Negative Highland at Centre



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## NEGATIVE WIND LOAD HIGHLAND STUCCO OUTER PANES

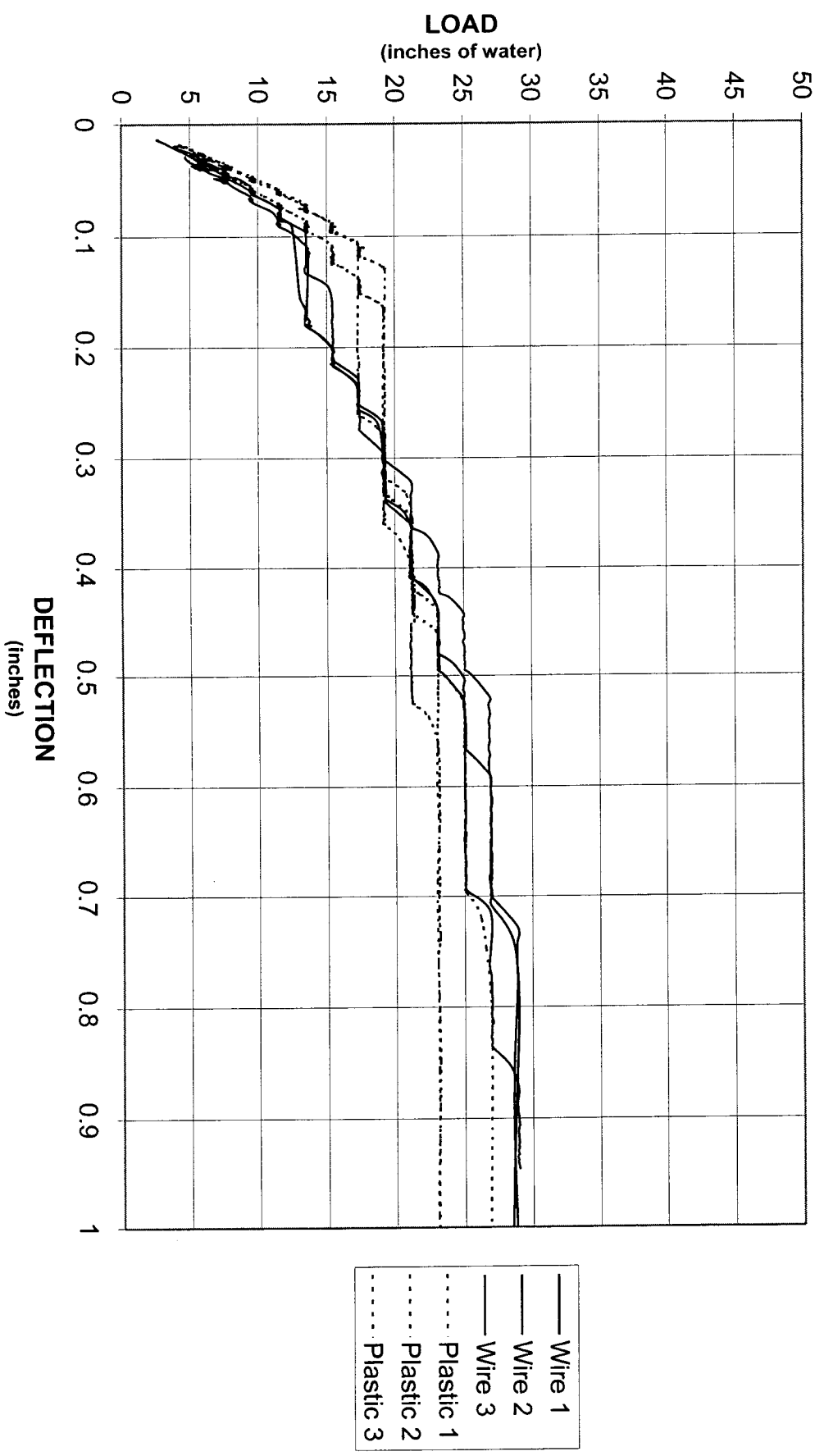


Plastic Components  
Project # 3030551  
Technician:

Negative Highland at Outer



NEGATIVE WIND LOAD  
CEMENT STUCCO  
CENTER PANE



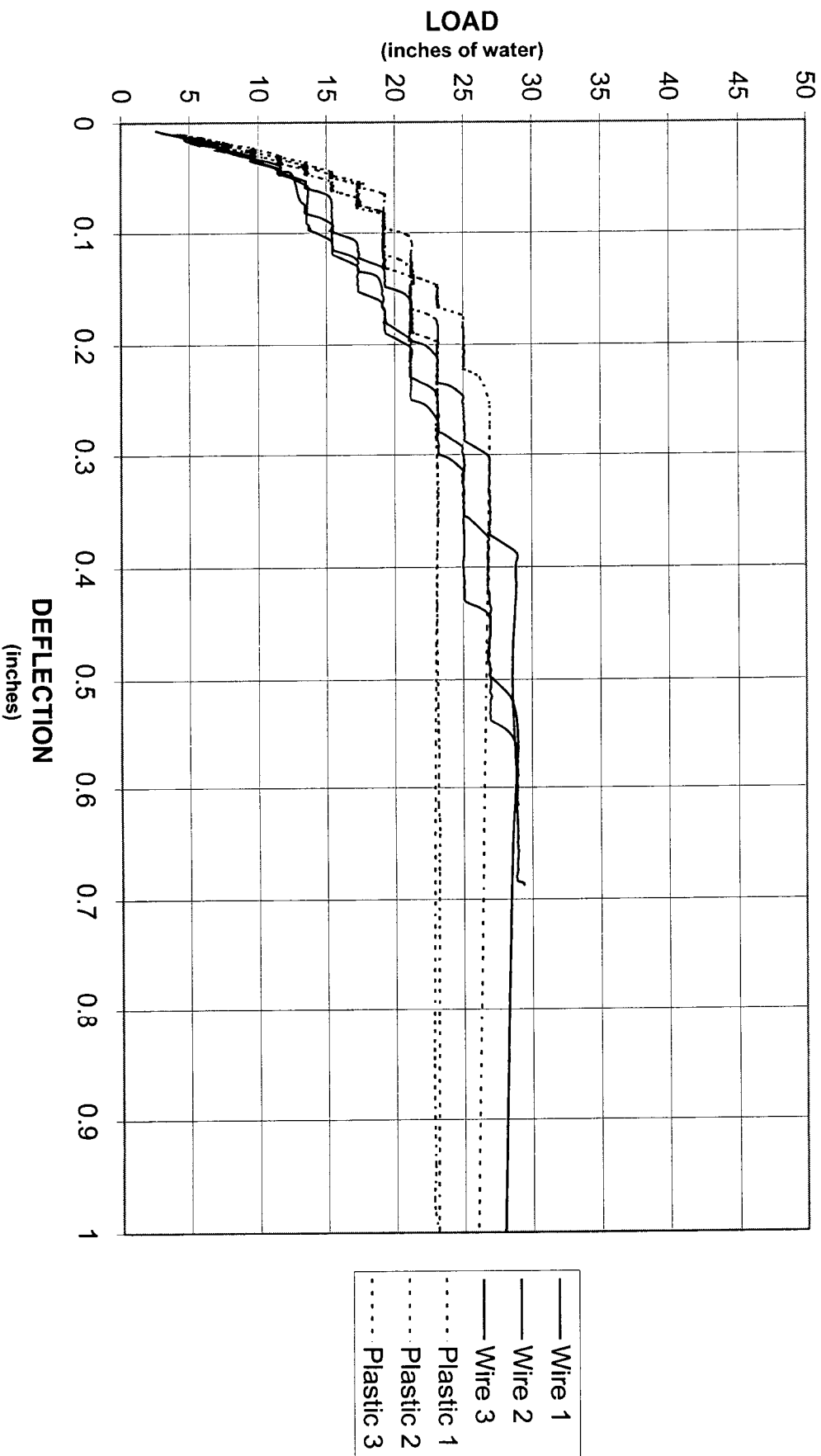
Plastic Components  
Project # 3030551  
Technician:

Negative Cement at Centre



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NEGATIVE WIND LOAD  
CEMENT STUCCO  
OUTER PANES



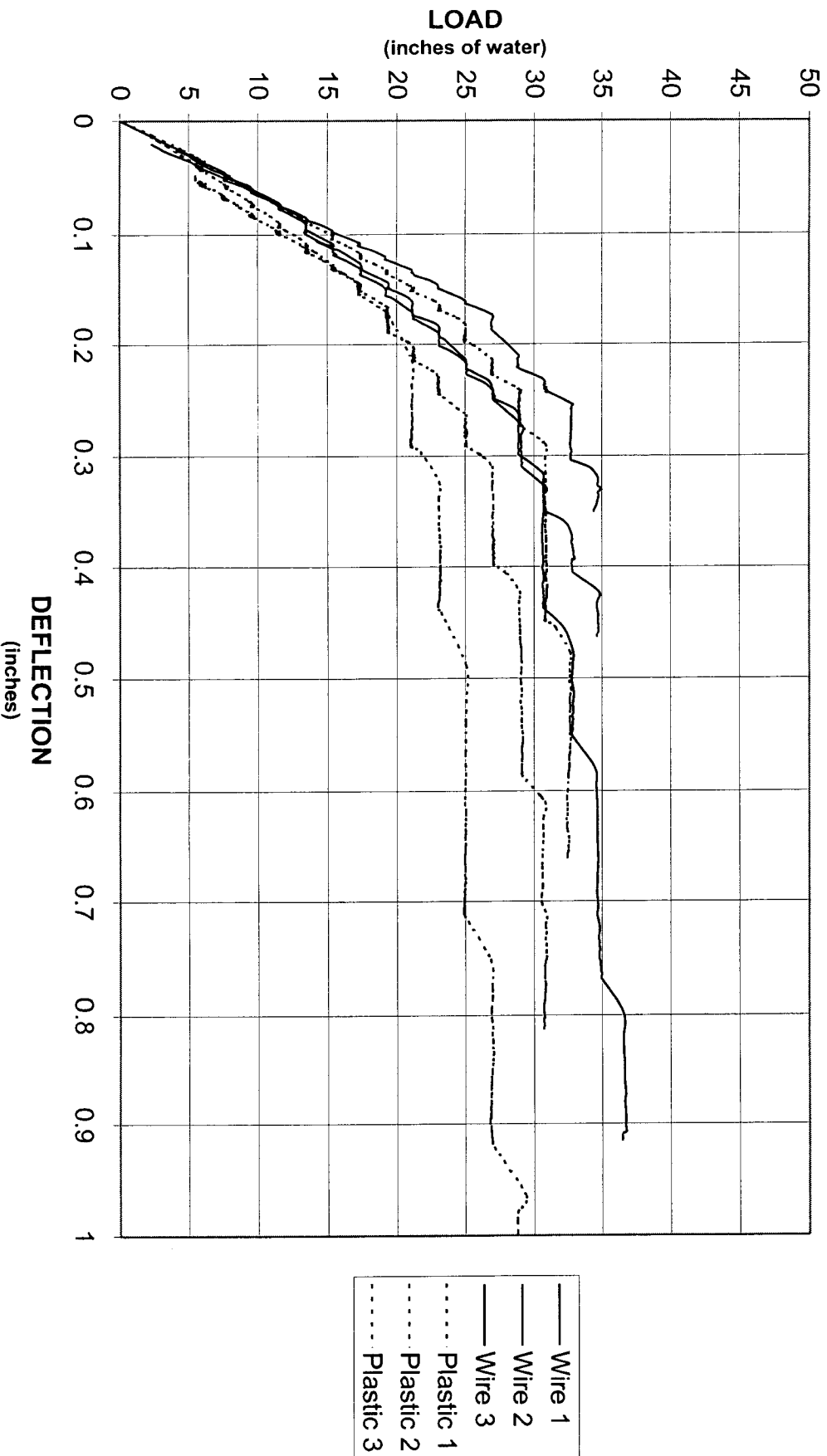
Plastic Components  
Project # 3030551  
Technician:

Negative Cement at Outer



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**POSITIVE WIND LOAD  
HIGHLAND STUCCO  
CENTER PANE**



Plastic Components  
Project # 3030551  
Technician:

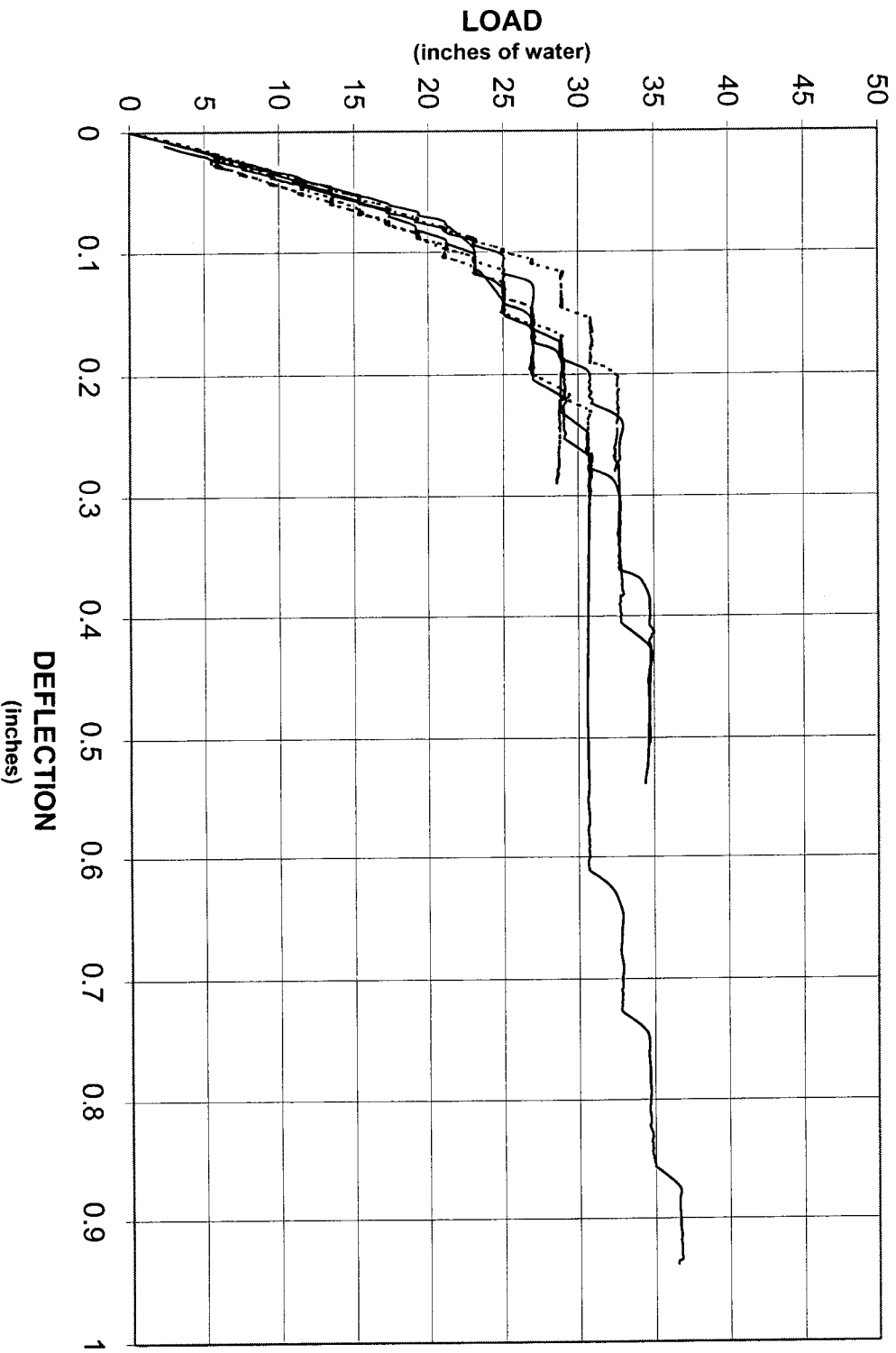
Positive Highland at Centre



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## POSITIVE WIND LOAD HIGHLAND STUCCO OUTER PANES



- Wire 1
- Wire 2
- Wire 3
- ..... Plastic 1
- ..... Plastic 2
- ..... Plastic 3

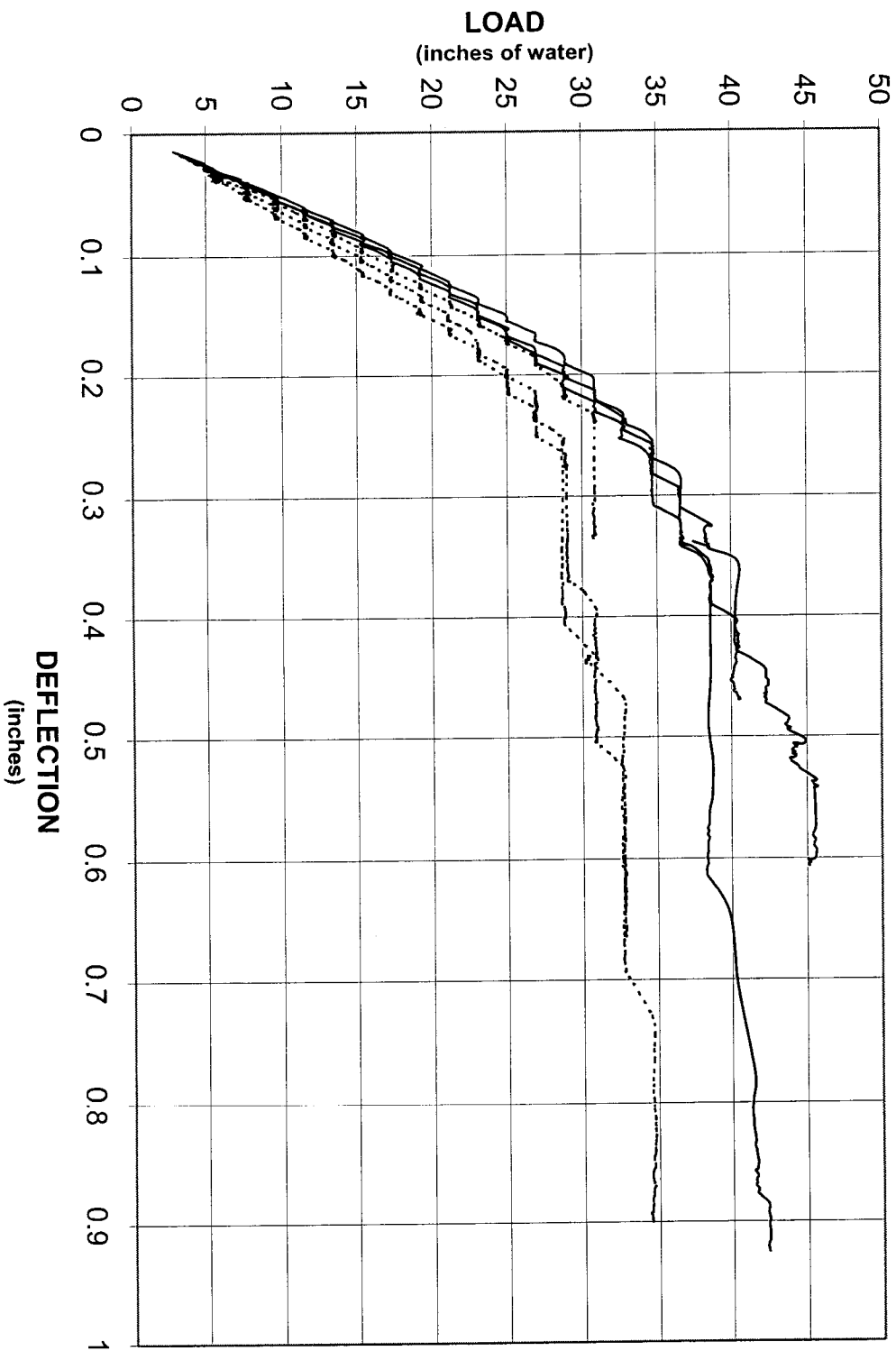
Plastic Components  
Project # 3030551  
Technician:

Positive Highland at outer

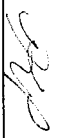


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POSITIVE WIND LOAD  
CEMENT STUCCO  
CENTER PANE



- Wire 1
- - - Wire 2
- · · Wire 3
- · - Plastic 1
- - - Plastic 2
- · · Plastic 3

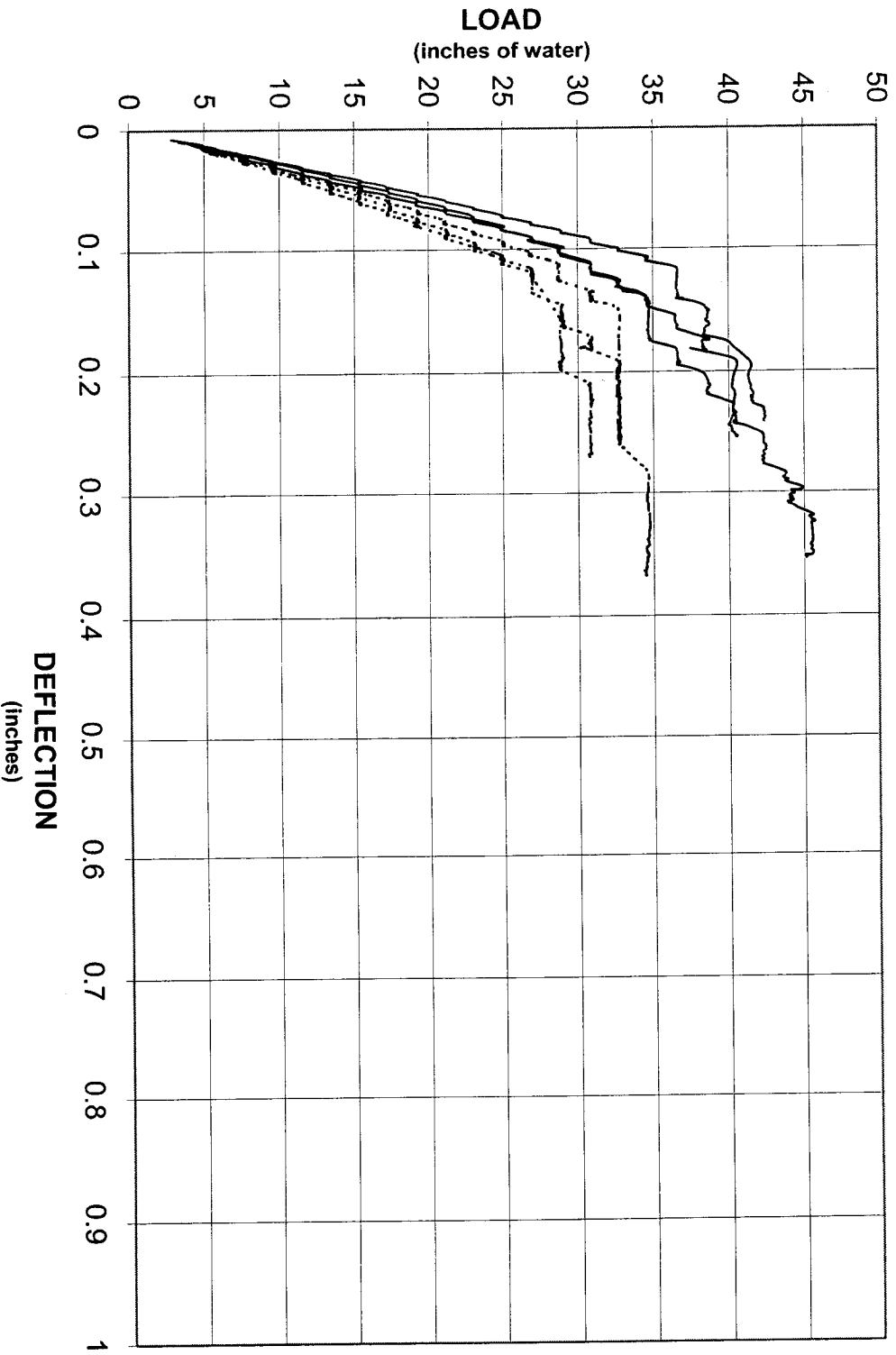
Plastic Components  
Project # 3030551  
Technician: 

Positive Cement at Centre



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POSITIVE WIND LOAD  
CEMENT STUCCO  
OUTER PANES



- Wire 1
- Wire 2
- Wire 3
- ..... Plastic 1
- ..... Plastic 2
- ..... Plastic 3

Plastic Components  
Project # 3030551  
Technician: *[Signature]*

Positive Cement at outer



**APPENDIX B**  
**(Alkali Resistance – 1 page)**


## Alkali Resistance

Date: January 22, 2003  
 Client: Plastic Components  
 Project: 3030551  
 Product: ULTRA-LATH  
 Exposure cycle: 28 days in 5% Sodium Hydroxide  
 Standard: ASTM E2098-00 replacing EIMA 105.01  
 Equipment: Caliper # P 52626  
 Instron # D 2691

Cross-head speed: 4"/min

Sample Orientation	Peak Loads (lbf/2")			
	Cross Machine Direction		Machine Direction	
	Conditioned	Unconditioned	Conditioned	Unconditioned
Sample #				
1	61.908	68.832	89.836	91.362
2	67.306	67.306	90.305	91.010
3	62.730	65.898	87.724	80.214
4	57.332	56.980	87.137	91.714
5	58.740	62.026	90.775	90.423
Averages	61.603	64.208	89.155	88.945
% Diff. (Cond/Uncond)	96.1%		100.5%	

Sample Orientation	Cross Machine Direction	Machine Direction
% Diff. (Cond/Uncond)	96.1%	100.5%

Tested by:   
 Kevin Penner  
 Technician, Construction Products

**APPENDIX C**  
**(Weight Determination – 1 page)**

**APPENDIX D**  
**(Photographs– 4 pages)**



## Weight per 1000 square feet


Date: January 21, 2003  
 Client: Plastic Components  
 Project: 3030551  
 Product: ULTRA-LATH  
 Exposure cycle: N/A  
 Standard: Client Request  
 Equipment: Caliper # P 52639  
 Scale # P 52606

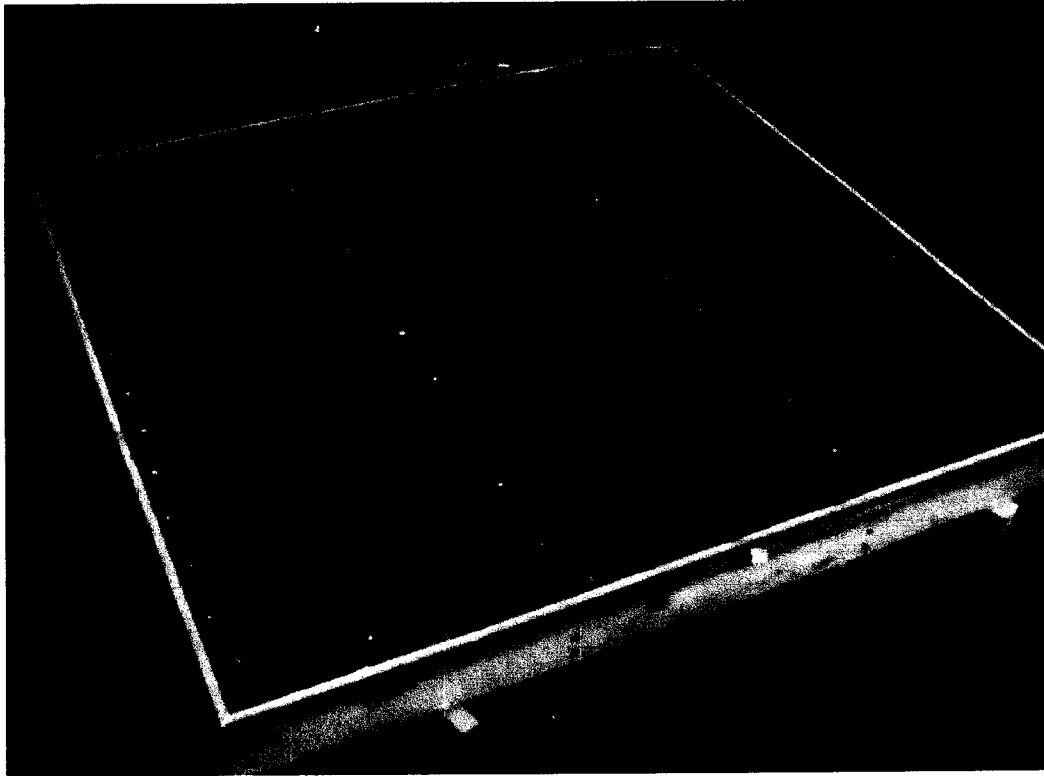
SAMPLE 'A'			Average	sq-ft	lb/1000(sq-ft)
	Length (in)	12.013	12.010	1.001	140.872
		12.0055			
		12.01			
	Width (in)	12.0025	12.003		
		11.9955			
		12.012			
	Weight (g)	63.967			
	Weight (lb)	0.141023055			

SAMPLE 'B'			Average	sq-ft	lb/1000(sq-ft)
	Length (in)	12.004	12.003	1.002	146.952
		12.0002			
		12.0035			
	Width (in)	12.027	12.021		
		12.012			
		12.0245			
	Weight (g)	66.788			
	Weight (lb)	0.147242294			

SAMPLE 'C'			Average	sq-ft	lb/1000(sq-ft)
	Length (in)	12.006	12.004	1.001	146.778
		12.0005			
		12.005			
	Width (in)	12.0005	12.013		
		11.9945			
		12.0435			
	Weight (g)	66.67			
	Weight (lb)	0.146982149			

	lb/1000(sq-ft)
Average of 3 samples	145

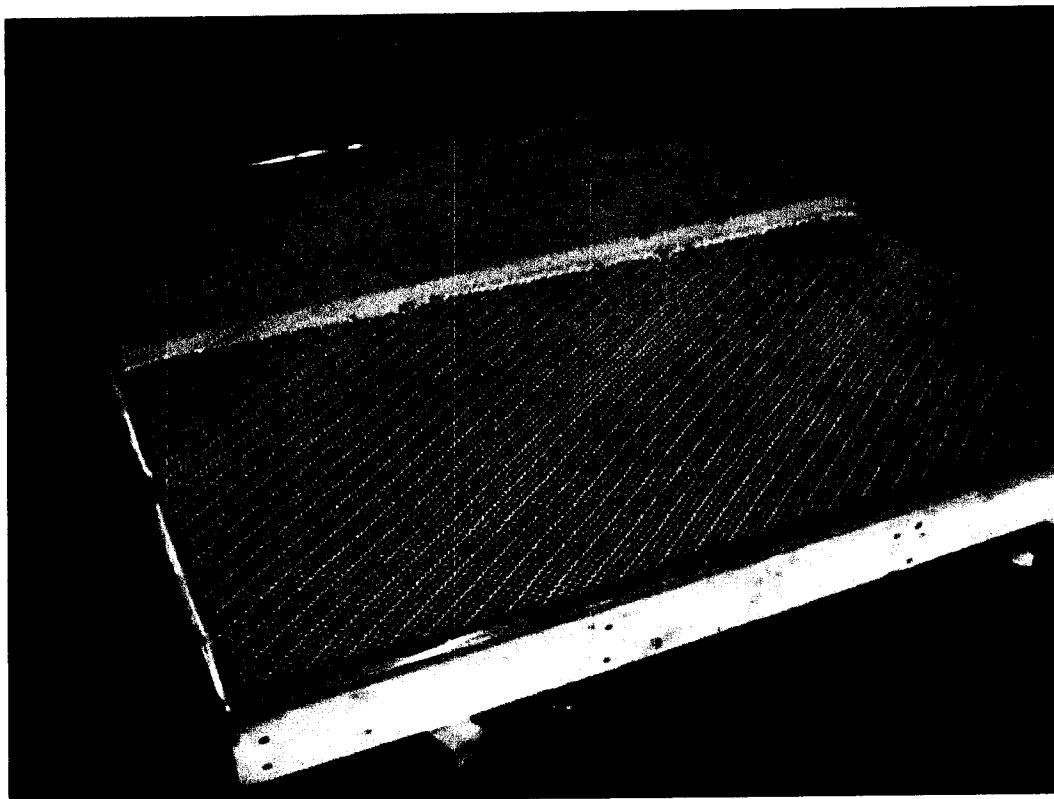
Tested By:   
 Kevin Penner  
 Technician - Construction Products



Photograph No. 1 - Typical 1" Woven Wire lath application



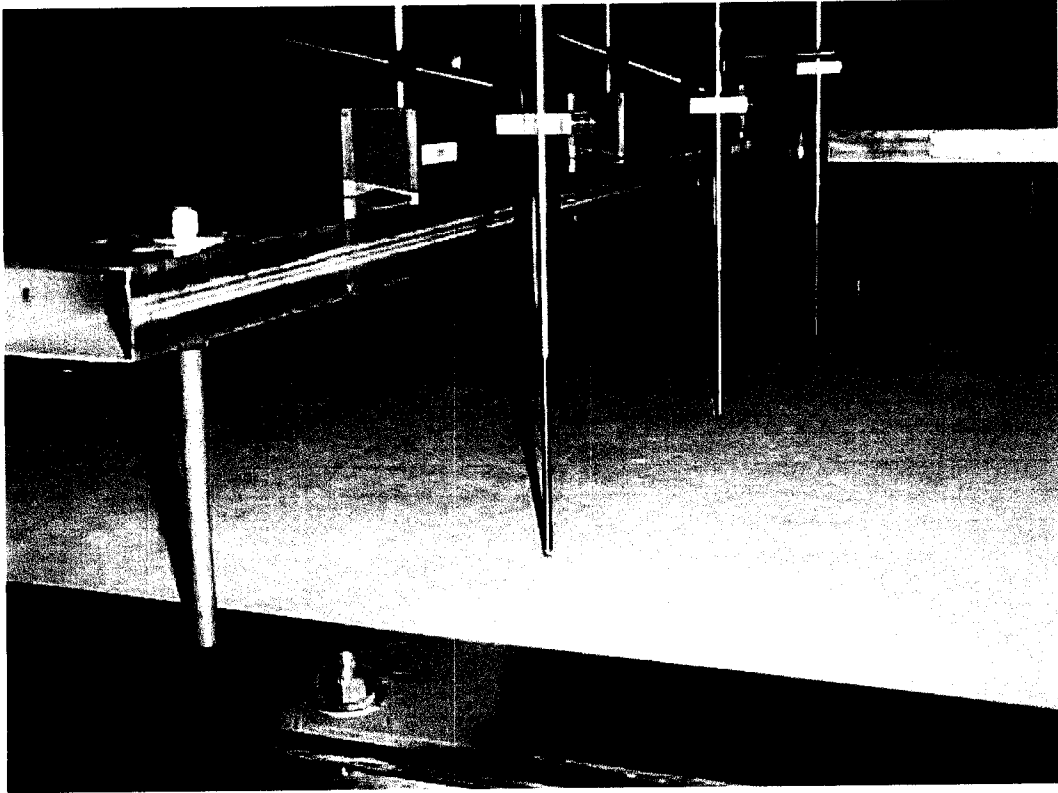
Photograph No. 2 - Typical 1" Woven Wire lath overlap and wire ties



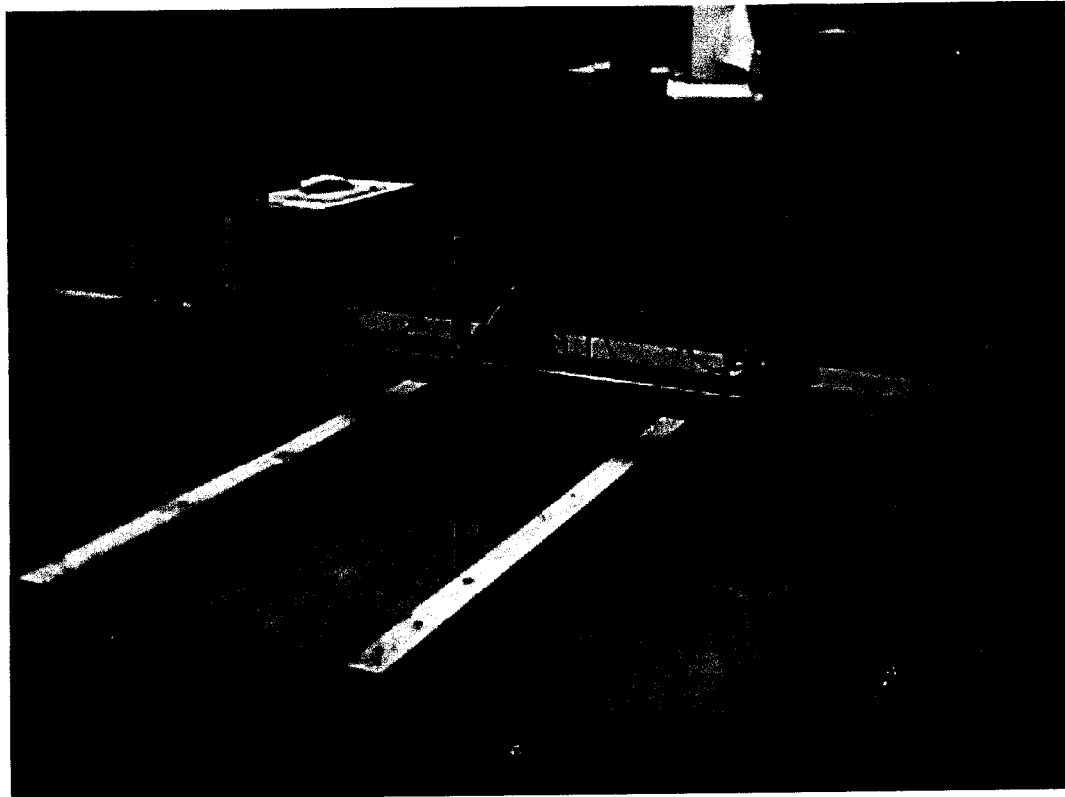
Photograph No. 3 - Typical ULTRA-LATH™ application



Photograph No. 4 - Typical ULTRA-LATH™ overlap and wire ties

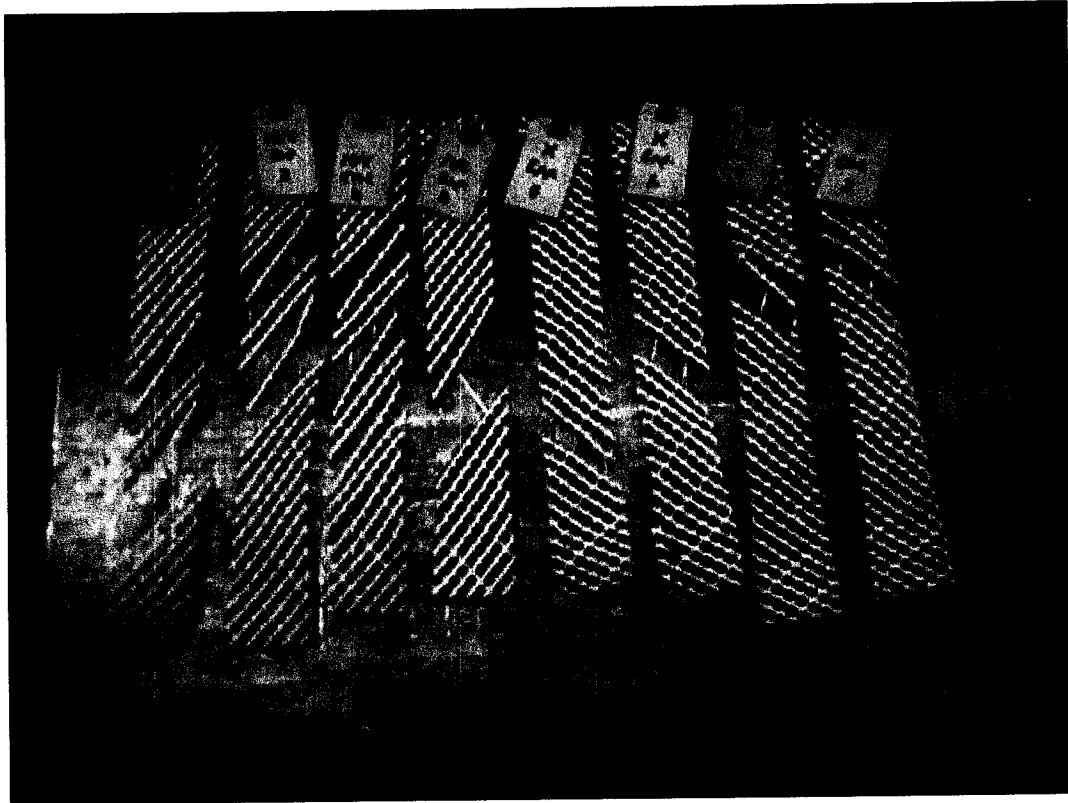


**Photograph No. 5 - Negative Transverse Load set-up**

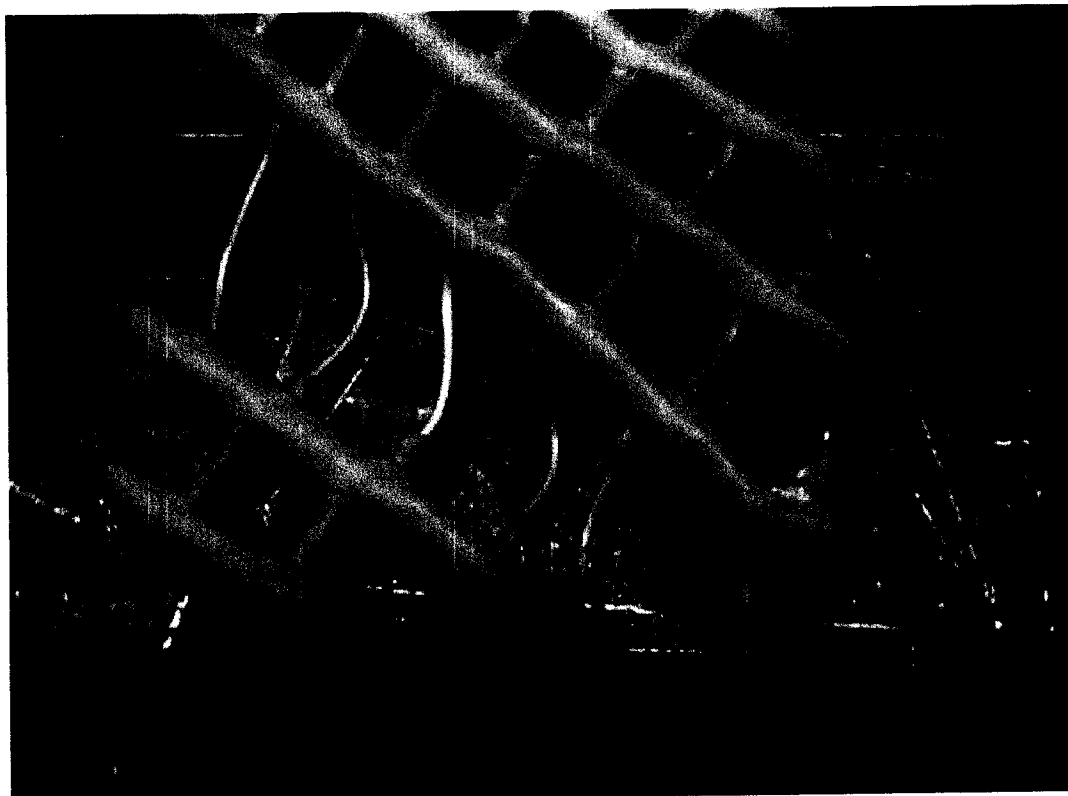


**Photograph No. 6 - Positive Transverse Load set-up**





**Photograph No. 7 - Typical Stretch and Break patterns of Aalkali Resistance tests**



**Photograph No. 8 - Close-up of typical Stretch patterns of Aalkali Resistance tests**