

STRUCTURAL PERFORMANCE TEST REPORT

Rendered to:

RAILING DYNAMICS, INC.

**PRODUCT: Aluminum Reinforced Columns
with 4" x 5-1/4" and 5" x 6-1/4" Cast Aluminum Base Plates**

Report No: 70033.01-119-16
Report Date: 01/12/07

STRUCTURAL PERFORMANCE TEST REPORT

Rendered to:

RAILING DYNAMICS, INC.
135 Steelmanville Road
Egg Harbor, New Jersey 08234

Report No: 70033.01-119-16
Test Date: 12/14/06
Report Date: 01/12/07

Products: Aluminum Reinforced Columns with 4" x 5-1/4" and 5" x 6-1/4"
Cast Aluminum Base Plates

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Railing Dynamics, Inc. to conduct structural performance tests on aluminum reinforced columns with 4" x 5-1/4" and 5" x 6-1/4" cast aluminum base plates. The testing was for uplift resistance strength of the column and end bracket assemblies.

Test Samples: All test samples were provided by Railing Dynamics, Inc., fully assembled. Three column bracket assemblies of each type were tested for uplift strength. Uplift samples measured 24" in length. Each sample had a 6105-T5 aluminum tube (2.500" or 3.290" diameter tube, 0.100" wall thickness) which was attached to the top cast aluminum base plate with a double-acting spring-loaded pin made from cast aluminum. The 2.500" diameter aluminum tube was attached to the bottom 4" x 5-1/4" cast aluminum base plate with a 5/16-18 x 3-1/4" long partially threaded, stainless steel hex head bolt. The 3.290" diameter aluminum tube was attached to the bottom 5" x 6-1/4" cast aluminum base plate with a 5/16-18 x 3-3/4" long partially threaded, stainless steel hex head bolt. Base plate material was ADC12. Reference drawings in Appendix A and photographs in Appendix B for additional description.

Equipment: For the uplift strength tests, the specimens were tested to ultimate capacity in tension utilizing a SATEC model 50UD universal test machine.

Uplift Load Test Set-Up: The testing machine was fitted with 8" x 8" x 1/2" thick aluminum plates at the top and bottom to accommodate anchorage of the 4" x 5-1/4" column brackets. A 7" x 7" x 1" thick steel plate at the top and bottom was used to anchor the 5" x 6-1/4" column brackets. The top metal plate was attached to the test machine cross-head with a 5/8-18 threaded rod. The bottom metal plate was rigidly to the test machine bed with a 5/8-18 threaded rod. Each end bracket was secured to the metal plate with four 1/4"-20 x 2" flat-head cap screws with washers and nuts. Evaluation of the base mounting hardware was not included in the scope of testing. Tests were run at a cross-head speed of 0.05 in/min and all tests were conducted at lab ambient temperature (68°F ±4°F). Reference photographs in Appendix B for test setup.

Uplift Load Test Procedure: Each test specimen was inspected prior to testing to verify size and general condition of the materials, assembly and installation. No potentially compromising defects were observed prior to the load test. After securing each column into the test machine, the load was applied at a uniform rate (0.05 in/min) until the ultimate load capacity was reached.

Uplift Load Test Results: The mode of failure in all tests was either a break on the outside housing of the spring loaded pin or one end of the pin being shearing off.

2-1/2" Diameter Column with 4" x 5-1/4" Cast Aluminum Bases

Specimen No.	Ultimate Load (lbs)	% Deviation From Average
1	2,489	0.0%
2	2,668	7.2%
3	2,306	7.3%
Average	2,488	

3.3" Diameter Column with 5" x 6-1/4" Cast Aluminum Bases

Specimen No.	Ultimate Load (lbs)	% Deviation From Average
1	2,859	4.4%
2	2,502	8.7%
3	2,857	4.3%
Average	2,739	

All test results are ultimate load capacity of individual specimens and should not be used as safe working values or design load values.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this test report will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period such materials shall be discarded without notice and the service life of this report by Architectural Testing will expire. Results obtained are tested values and were secured using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Christian E. Lapadat
Technician

David H. Forney, P.E.
Senior Project Engineer

CEL:tah/nlb

Attachments (pages)

Appendix A - Drawings (2)

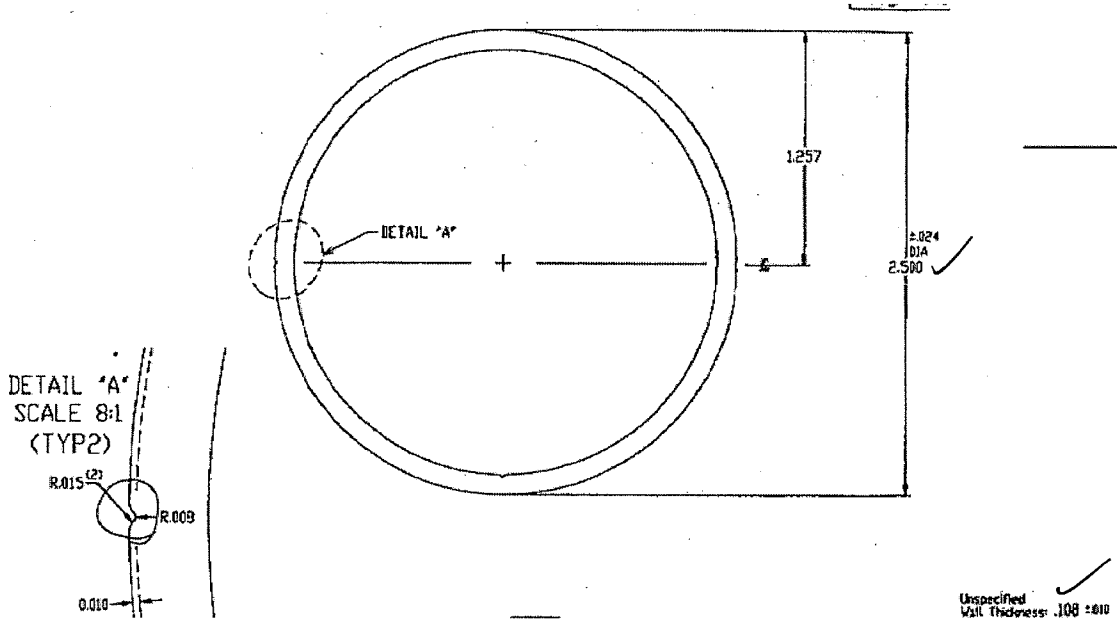
Appendix B - Photographs (3)

Revision Log

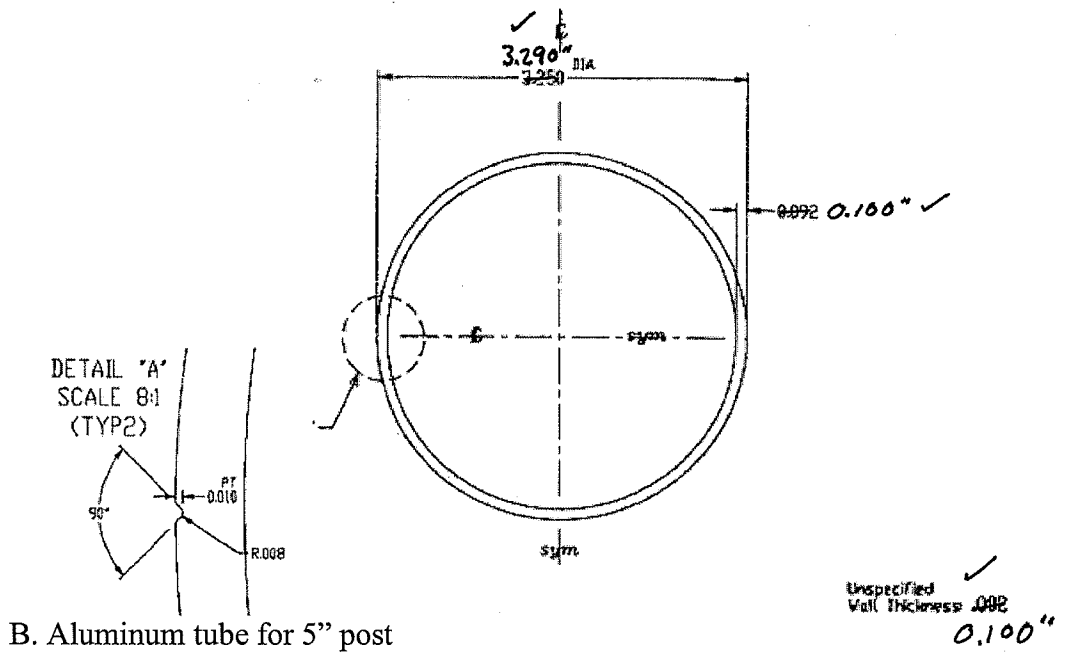
<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	01/12/07	N/A	Original report issue

APPENDIX A

Drawings



A. Aluminum tube for 4" post

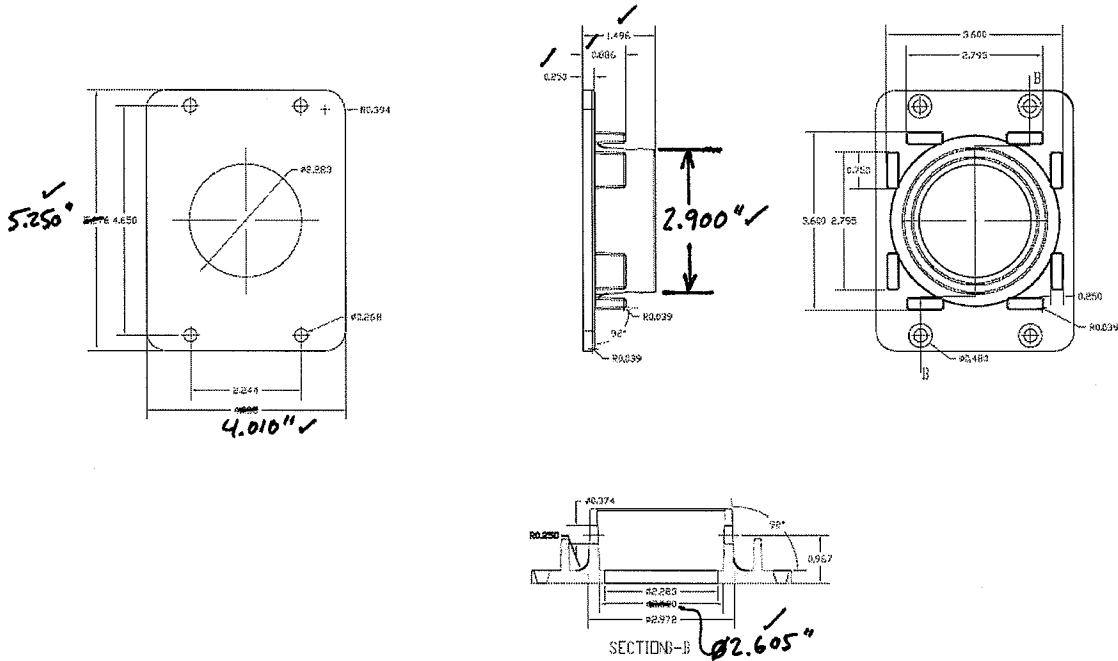


B. Aluminum tube for 5" post

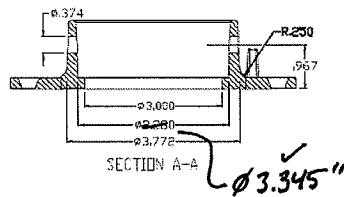
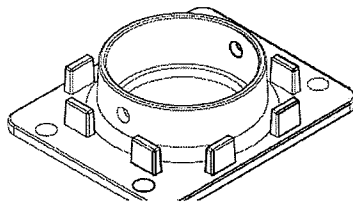
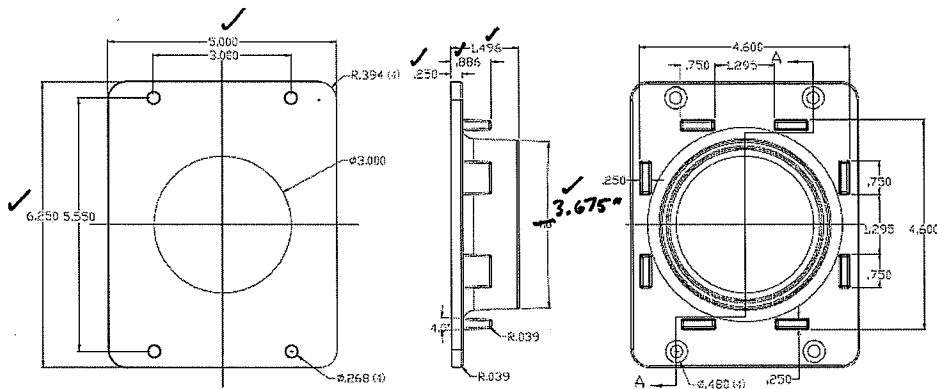
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 70033.01
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C. Base Plate for 4" Post



D. Base plate for 5" post



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 70033.01

Date 1/8/07 Tech 716

APPENDIX B

Photographs



Photo No. 1
Uplift Resistance Test Setup

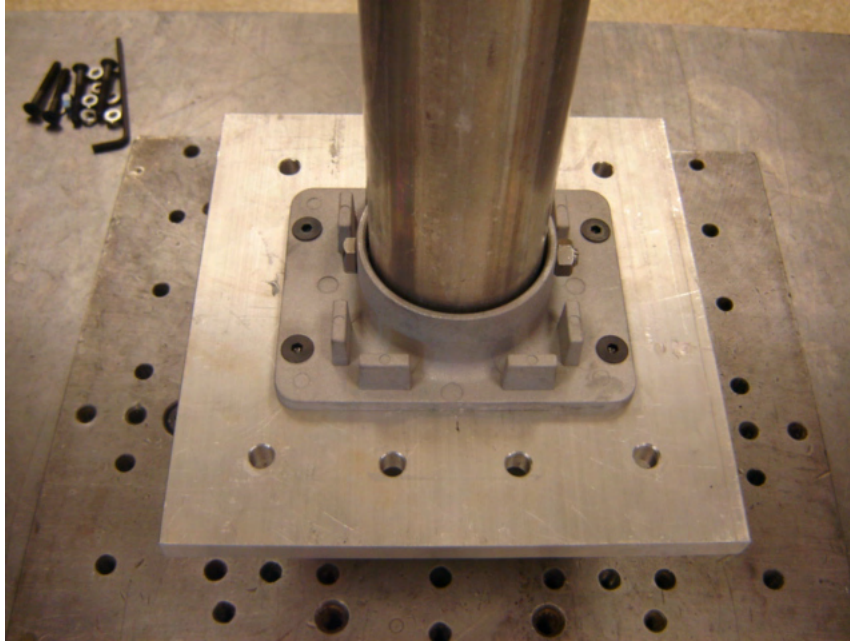


Photo No. 2
4" x 5-1/4" Cast Aluminum Base Plate Anchored to Bottom Aluminum Plate

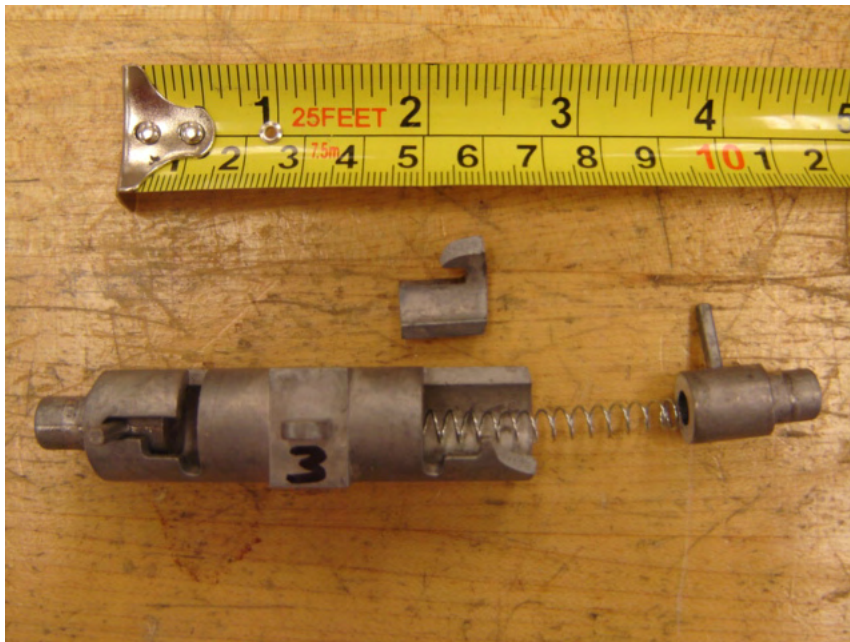


Photo No. 3
Spring-Loaded Pin
Failure - Outside Break of Housing

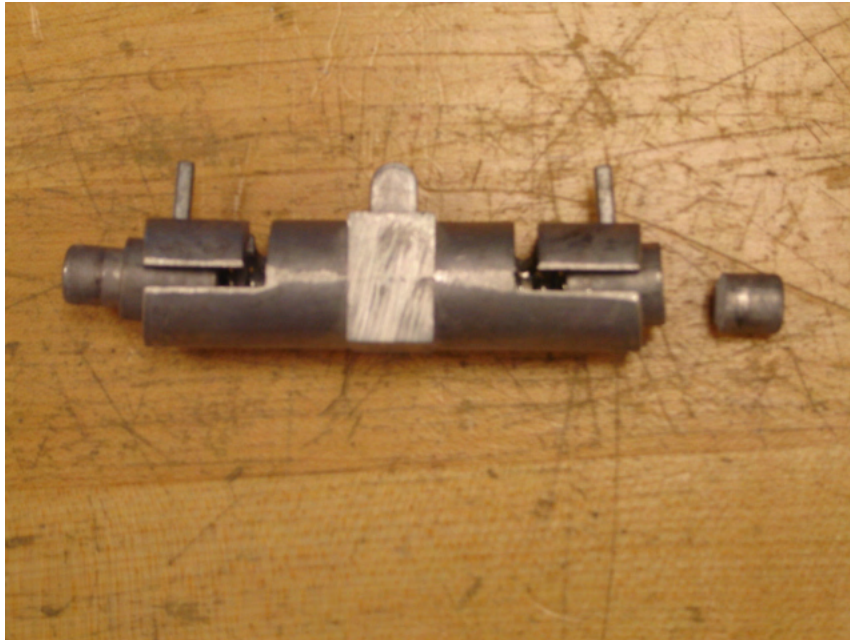


Photo No. 4
Spring-Loaded Pin
Shear Failure at One End