Architectural Testing

STRUCTURAL PERFORMANCE TEST REPORT

Rendered to:

COLOR GUARD - A DIVISION OF POLY VINYL COMPANY

PRODUCT: 5" x 5" *Storm Collar* Post Bracket

Report No: 68888.01-119-16
Report Date: 01/19/07

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Architectural Testing

STRUCTURAL PERFORMANCE TEST REPORT

Rendered to:

COLOR GUARD - A DIVISION OF POLY VINYL COMPANY
320 Range Line Road
Sheboygan Falls, Wisconsin 53085

Report No:	68888.01-119-16
Test Date:	12/22/06
Report Date:	01/19/07
**Record Retention End Date:	12/22/10

Products: 5" x 5" *Storm Collar* Post Bracket

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Color Guard - A Division of Poly Vinyl Company to conduct structural performance tests on aluminum reinforced PVC columns with *Storm Collar* brackets. The testing was for uplift resistance strength of the column and end bracket assemblies.

Test Samples: All test samples were provided by the manufacturer for testing. Three column bracket assemblies were tested for uplift strength. Uplift samples measured 20" in length. Each sample was comprised of an aluminum reinforcing member (tube) inside of vinyl porch post with extruded plastic spacers. The aluminum tube had a 0.100" wall thickness and an outside diameter of 3-3/4". The *Storm Collar* bracket was a cast aluminum part with a base thickness of 0.250". A cylindrical ring in the center of the bracket base extended into the end of the aluminum tube inside the porch post. The post was attached to the bracket with four (4) #10 by 1-3/4" stainless steel screws (one each side). The base plate had four holes for anchors to secure the bracket to the supporting and/or supported structure. See drawings and photographs in Appendices A and B for additional details.

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 7" by 7" by 1" thick steel plates at the top and bottom to accommodate anchorage of the column brackets. The top steel plate was attached to the test machine cross-head with a self-aligning swivel mechanism. The bottom steel plate was attached rigidly to the test machine bed. Each end bracket was secured to the steel plate with four 1/4"-20 by 1-1/4" flat-head cap screw. 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 (68ºF ±4ºF). Reference photograph in Appendix B for test setup.

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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 the fasteners translating from a generally axial orientation (with respect to the column load axis) to a more radial orientation and elongating the holes in the aluminum tube.

Specimen No.	Ultimate Load (lbs)	% Deviation From Average
1	3496	18.9%
2	2604	11.5%
3	2724	7.4%
Average:	**2,941**	

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
Digitally Signed by: Christian E. Lapadat

Christian E. Lapadat
Technician

Digitally Signed by: Travis Hoover

Travis A. Hoover
Project Engineer

CEL:tah/nlb

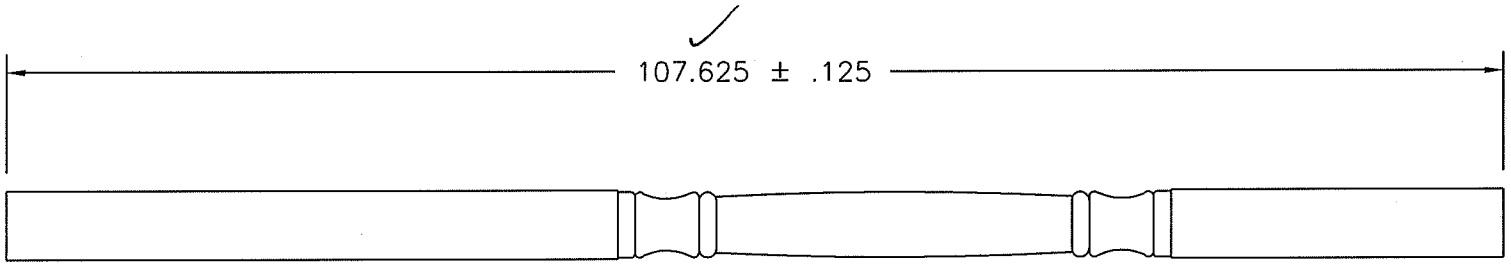
Attachments (pages)
Appendix A - Drawings (4)
Appendix B - Photographs (1)

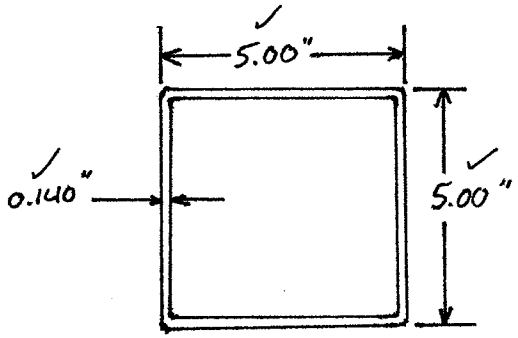
Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	01/19/07	N/A	Original report issue

APPENDIX A

Drawings





Architectural Testing

Test sample complies with these **details.**
Deviations are noted.

Report# GB88B.01-119-16

Date 1/16/07 Tech TG

LENGTH–

NOTES:

1 ALL COMPONENT ITEMS MUST FIT MOLDED TUBE

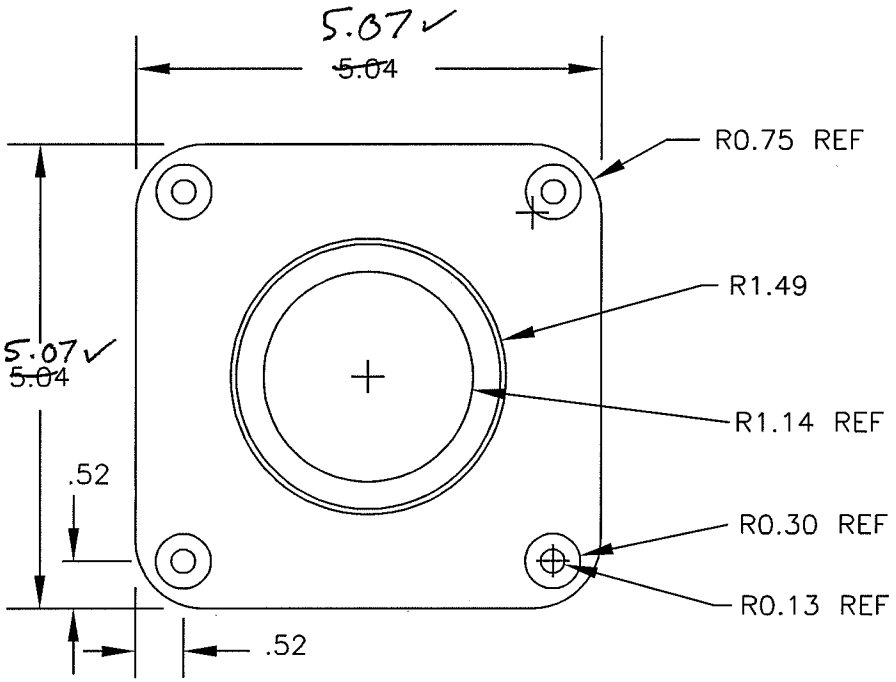
2 REFERENCE COLONADE SAMPLE BOARD FOR FINISH REQUIREMENTS

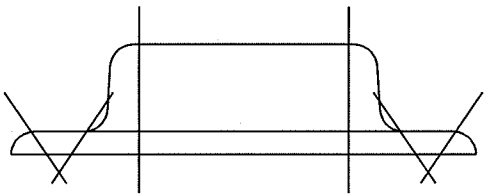
3

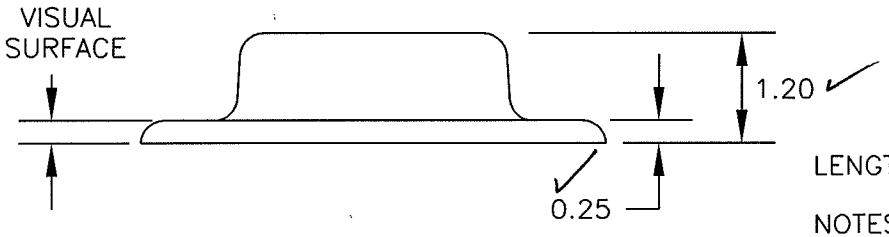
4

Poly Vinyl Co.
CUSTOM EXTRUSIONS
DRAWER 300 SHEBOYGAN FALLS, WI 53085
PH. (920) 467-4685 FAX. (920) 467-3271

WALL	
AREA–	LOG .3
FLEXIBLE	REV. 1
RIGID	DR. BY DH
TOLERANCES–	SCALE
XX ± .020	DATE 5/22/01
XXX ± .010	DIE
ANGLES	
BUILDING PRODUCTS	
PART NO. W55–108CP	







Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 68888.01-119-16

Date 1/16/07 Tech 716

LENGTH–

NOTES:

1 POWDER COAT PAINT
STANDARD COLOR GUARD WHITE

2

REV	DATE	INTL	EXPLANATION
1	11/2/05	TLB	CHANGE ALUMINUM ALLOY FROM 356 TO A-356
2	12/19/05	TLB	REFERENCE VS CRITICAL DIMENSIONS FLATTNESS, AND HOLE LOCATIONS

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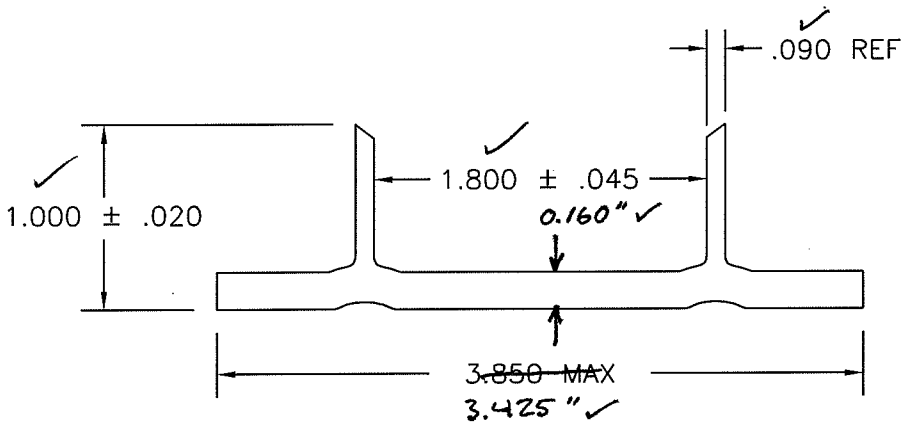
WALL	
AREA–	LOG
FLEXIBLE	REV. 2
RIGID	DR. BY TLB
TOLERANCES–	SCALE 1/2
XX ± .030	DATE 12/19/05
XXX ±	DIE
ANGLES	
TIE DOWN BRACKET	
PART NO. 720661	



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# GBBBB.01-119-16

Date 1/16/07 Tech 76

LENGTH– 23.000 +.000/–.500

NOTES:

1

2

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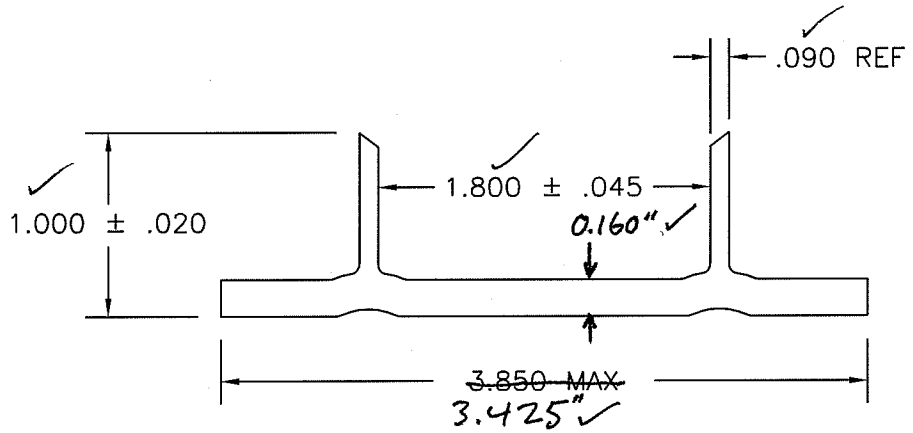
PH. (920) 467-4685 FAX. (920) 467-3271

WALL	
AREA–	LOG .4
FLEXIBLE	REV. REL
RIGID .851	DR. BY DH
TOLERANCES–	SCALE FULL
XX ±	DATE 3/27/01
XXX ± .030	DIE 3264
ANGLES	
PART NO.	10000511



Architectural Testing

Test sample complies with these details.
Deviations are noted.

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Date 1/16/07 Tech 74

LENGTH– 43.000 +.000/–.500

NOTES:

1

2

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WALL	
AREA–	LOG .4
FLEXIBLE	REV. REL
RIGID .851	DR. BY DH
TOLERANCES–	SCALE FULL
XX ±	DATE 3/27/01
XXX ± .030	DIE 3264
ANGLES	
PART NO.	10000510

APPENDIX B

Photographs

Photo No. 1
Uplift Resistance Test Setup