Intertek | Architectural Testing

TEST REPORT

Rendered to:

DENNISVILLE FENCE

For:

PRODUCT: **6 ft x 6 ft and 6 ft x 8 ft Vinyl Privacy Fence Systems**

Report No.:	**G7563.01-119-16**
Test Date:	**03/29/17**
Report Date:	**07/07/17**
Test Record Retention Date:	**03/29/21**
Revision 1:	**07/11/17**

130 Derry Court
York, PA 17406

www.archtest.com • www.intertek.com/building

p. 717.764.7700
f. 717.764.4129

Intertek | Architectural Testing

TEST REPORT

G7563.01-119-16
July 7, 2017

TABLE OF CONTENTS

MIAMI-DADE COUNTY TEST REPORT

Rendered to:

DENNISVILLE FENCE
16 Hall Avenue
Dennisville, New Jersey 08214

Report No.:	G7563.01-119-16
Test Date:	03/29/17
Report Date:	07/07/17
Test Record Retention Date:	03/29/21
Revision 1:	07/11/17

1.0 General Information

1.1 Product

1) 6 ft x 6 ft privacy fence using 5-1/2 in PVC brackets for mounting to PVC post
2) 6 ft x 8 ft privacy fence using 7 in PVC brackets for mounting to PVC post

1.2 Project Description

Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted by Dennisville Fence to perform dynamic wind load tests on their 6 ft x 6 ft and 6 ft x 8 ft vinyl privacy fence systems. Testing was conducted at the Intertek-ATI laboratory in York, Pennsylvania. This report includes comprehensive written and photographic documentation of testing performed.

2.0 Dynamic Wind Load Testing

2.1 Test Specimen

One specimen of each vinyl privacy fence system were tested. The 6 ft high by 6 ft wide assembly consisted of a 1-panel/2 post fully assembled fence section. The 6 ft high by 8 ft wide assembly consisted of a 2-panel/3-post fully assembled fence section. Dennisville Fence provided all test materials to Intertek-ATI in York, Pennsylvania. Test materials were inspected prior to testing by an Intertek-ATI technician to verify the condition of the materials was suitable for testing. No potentially compromising defects were observed. See drawings in Appendix A for detailed descriptions of assembly and components.

2.2 Equipment

One propeller fan wind generator was utilized for testing of the one-panel system and two propeller fan wind generators were utilized for testing of the two-panel system. The propeller of each fan was 84 in diameter and was comprised of four Kevlar composite airfoil units belt-driven by a high-output V8 engine. Wind speeds for the wind generators were calibrated according to AAMA 501.1-05. Deflections were measured with linear displacement transducers accurate to 0.01 inch.

2.3 Test Setup

A steel test fixture was designed and fabricated to simulate a rigid post embedment. The bottom of the bottom rail was fixed at two inches above the top of the test fixture. The propeller fan wind generator(s) was positioned 4 ft from the face of the specimen (reference photographs in Appendix B). Linear transducers were fixed on the top rail, middle of the in-fill area, and bottom rail for deflection measurements.

2.4 Test Procedure

Wind load testing began at 50 mph and increased until failure or a maximum wind speed of 115 mph. Wind loads were performed with a relaxation period following 50 mph, 75 mph, 85 mph, 95 mph, 105 mph and 115 mph to record permanent set measurements. The duration of the applied wind load at each wind speed was determined by using the following equation:

$t = 3600 / V_{fm}$ (Equation 1)

where:
t = duration (s), required for a one mile long sample of air to pass
V_{fm} = "fastest mile" wind speed (mph)

Wind speeds used in testing correlate with "fastest mile" wind speeds (V_{fm}) for reference to codes and design standards. Maximum deflections were recorded at each load level.

2.5 Dynamic Wind Load Test Results

See drawings in Appendix A for assembly details and photographs in Appendix B for specimen orientation respective to wind direction.

Test Series No. 1

Description: 6 ft high by 8 ft wide (nominal) 2-panel/3-post PVC privacy fence using PVC collar brackets for mounting to PVC post

Rails: Two 1-3/4 in wide by 7 in high by 90-5/16 in long (0.050 in wall) PVC slotted rails per panel

Rail Reinforcement: None

Panels: Fifteen 7/8 in deep by 6-5/16 in wide (including tongue) by 63-1/2 in long smooth PVC *Glidelock* tongue and groove panels per panel.

Post: Three 5 in by 5 in by 99-1/2 in long (0.160 in wall) PVC posts

Rail Attachment: Four 7-1/2 in high by 3-1/2 in wide PVC collar brackets per panel, one at each end of top and bottom rail. Each bracket was secured to the post using four #10-10 x 1-1/2" (0.117 in minor diameter) pan head, phillips drive, self-drilling, zinc coated carbon steel screws. Each bracket was secured to the rail using one #10-12 x 1" (0.126 in minor diameter) pan head, phillips drive, self-drilling, zinc coated carbon steel screw on windward side of fence.

Test Date: 03/29/17

Wind Speed	Duration	Maximum Deflection (inches)					
		Top		Mid		Bottom	
		Left	Right	Left	Right	Left	Right
50 mph	72 sec	2.03	2.40	1.35	2.30	0.87	1.16
0 mph	Permanent Set	0.67	0.41	0.70	0.41	0.37	0.21
60 mph	60 sec	4.20	3.97	3.15	3.32	1.36	1.70
70 mph	51 sec	5.40	6.10	4.51	5.80	1.85	2.60
75 mph	48 sec	5.90	6.60	4.59	6.10	1.70	3.11
0 mph	Permanent Set	0.35	0.35	0.65	0.27	0.38	0.15
85 mph	42 sec	8.00	9.73	6.49	8.5	2.40	4.70
0 mph	Permanent Set [1]	--	--	--	--	--	--

[1] *Deflection readings were not recorded due to equipment malfunction.*

***Observation**: Bottom rail broke away from brackets 28 sec into 95 mph.*

Maximum Sustained Wind, V_{fm} = 85 mph (equivalent 3-second gust, V_{3s} = 100 mph)

2.5 Dynamic Wind Load Test Results: (Continued)

Test Series No. 2

Description: 6 ft high by 6 ft wide (nominal) 1-panel/2-post PVC privacy fence using PVC collar brackets for mounting to PVC post

Rails: Two 1-3/4 in wide by 5-1/2 in high by 66-1/2 in long (0.085 in wall) PVC slotted rails

Rail Reinforcement: None

Panels: Eleven 7/8 in deep by 6-5/16 in wide (including tongue) by 63-1/2 in long smooth PVC *Glidelock* tongue and groove panels.

Post: Two 5 in by 5 in by 99-1/2 in long (0.160 in wall) PVC posts

Rail Attachment: Four 6 in high by 3-1/2 in wide PVC collar brackets, one at each end of top and bottom rail. Each bracket was secured to the post using four #10-10 x 1-1/2" (0.117 in minor diameter) pan head, phillips drive, self-drilling, zinc coated carbon steel screws. Each bracket was secured to the rail using one #10-12 x 1" (0.126 in minor diameter) pan head, phillips drive, self-drilling, zinc coated carbon steel screw on windward side of fence.

Test Date: 03/29/17

Wind Speed	Duration	Maximum Deflection (inches)		
		Top	Mid	Bottom
50 mph	72 sec	1.93	1.92	0.64
0 mph	Permanent Set	0.11	0.13	0.06
60 mph	60 sec	2.51	2.54	0.81
70 mph	51 sec	3.36	3.86	1.05
75 mph	48 sec	4.00	3.86	1.23
0 mph	Permanent Set	0.23	0.15	0.07
85 mph	42 sec	4.86	4.77	1.49
0 mph	Permanent Set	0.33	0.25	0.18
95 mph	38 sec	5.73	5.34	1.70
0 mph	Permanent Set	0.44	0.33	0.11
105 mph	34 sec	6.35	5.93	1.97
0 mph	Permanent Set	0.57	0.42	0.14
115 mph	31 sec	7.90	7.44	2.45
0 mph	Permanent Set	0.68	0.49	0.20

***Observation**: Infill panels blew out attempting to reach 125 mph*

Maximum Sustained Wind, V_{fm} = 115 mph (equivalent 3-second gust, V_{3s} = 131 mph)

3.0 Closing Statement

Intertek-ATI will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Intertek-ATI for the entire test record retention period.

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 Intertek-ATI.

For INTERTEK-ATI:

Digitally Signed by: Robert Spayd

Robert G. Spayd
Technician II

Digitally Signed by: Virgal Thomas Mickley, Jr.

V. Thomas Mickley, Jr., P.E.
Senior Staff Engineer

RGS:vtm/aaa

This report is complete only when all attachments listed are included.
Attachments (pages):

Appendix A - Drawings (8)
Appendix B - Photographs (1)

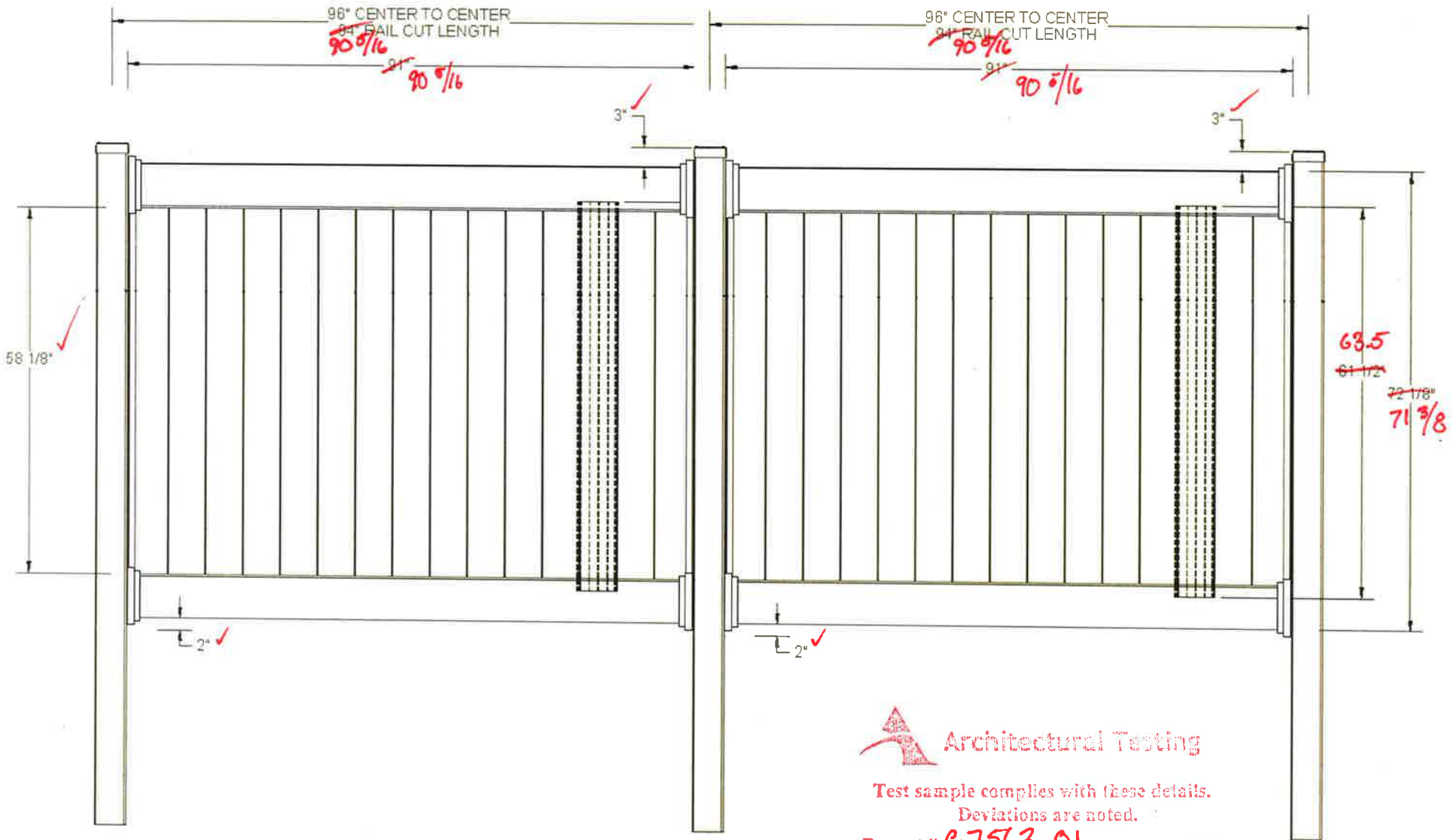
Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	07/07/17	N/A	Original report issue
1	07/11/17	Cover, 1	Corrected the size of the fence panels tested

APPENDIX A

Drawings

6' High X 8' Wide / 5 Inch Post / 7 Inch Bracket_Illustration

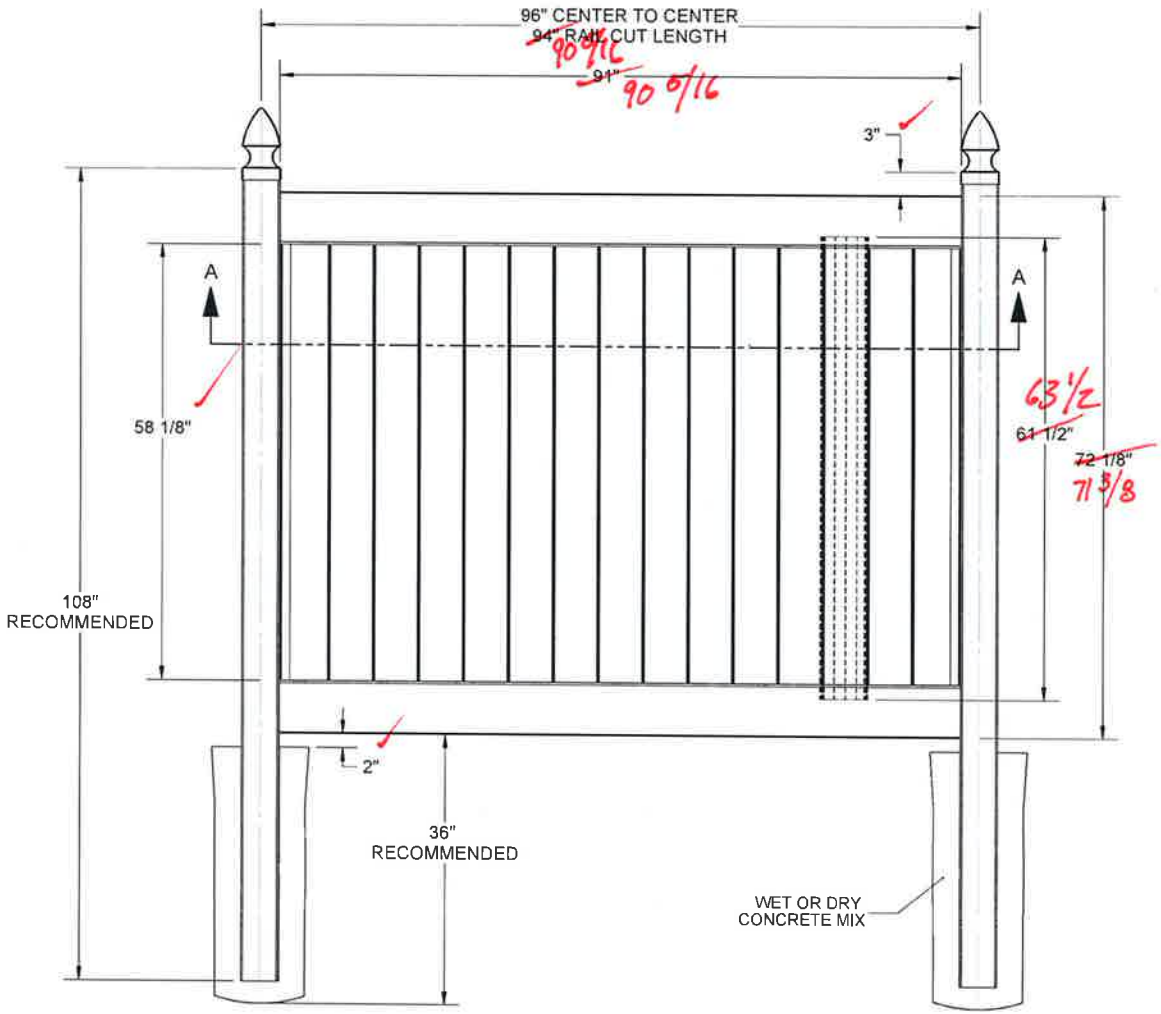


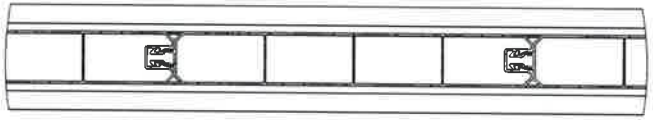
Architectural Testing

Test sample complies with these details.
Deviations are noted.

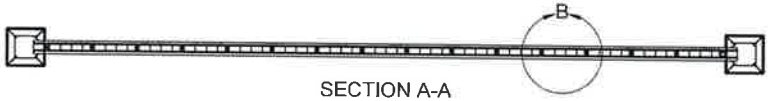
Report # G7563.01

Date 5/6/17 Tech RGS





DETAIL B
SCALE 1 : 2



SECTION A-A

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report # G7563.01

Date 5/5/17 Tech RGS

Barrette

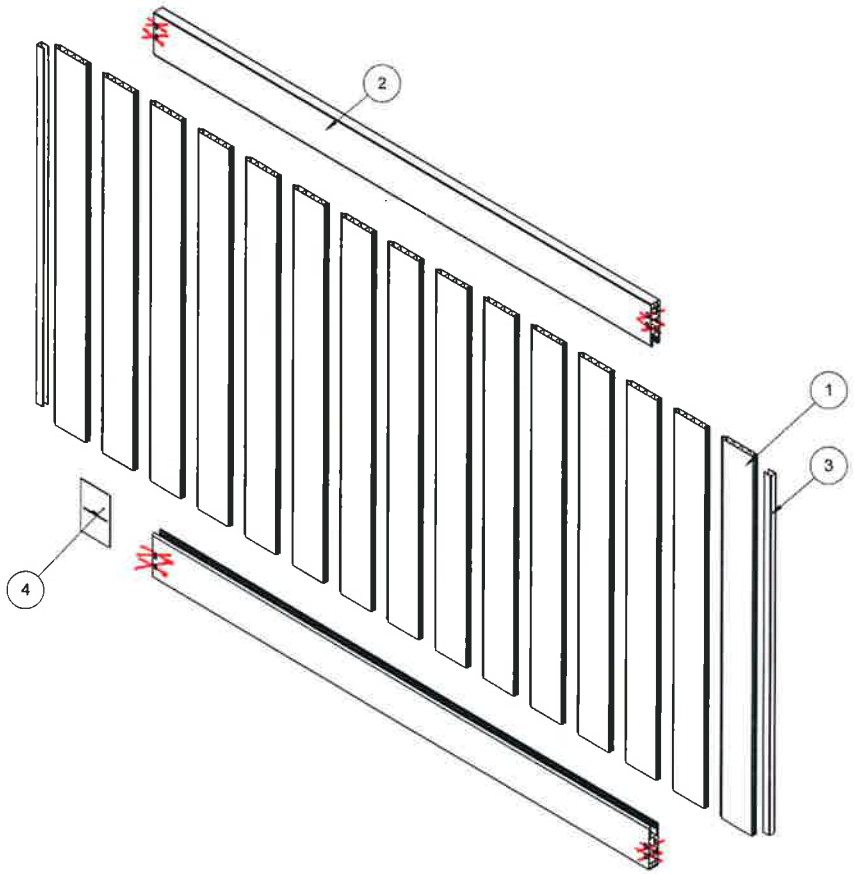
BARRETTE
Outdoor Living
740 N. Main St., Bulls Gap, TN 37711

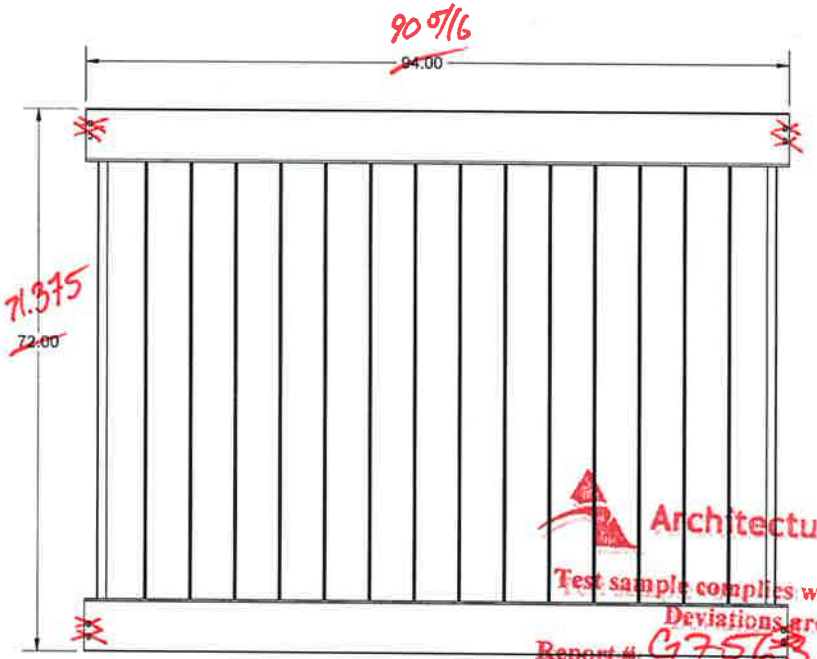
D.WRIGHT	8/29/2013	

6X8 7" PRIVACY PANEL WHITE W/GL 72" .035 (QQ)

SHEET 3 OF 3	4	73014530
SCALE 1:16		
WEIGHT: 181.44		

ITEM NO.	73014530 WHITE	73014530 WHITE INLINE	73014533 SAND	73014533 SAND INLINE	DESCRIPTION	QTY
1	61109121	61113203	61116976	61113204	.875X6X61.5 W/.035 GLIDELOCK EXTR	15
2	61107223		61108682		1.75X7X94 DECO W/ BARB EXTR	2
3	61108748		61108475		1.02X1.379X58.375 EXTR U-CHANNEL	2
4	34107823				INSTRUCTIONS PRIVACY VINYL FENCE KIT	1





Architectural Testing
Test sample complies with these details.
Deviations are noted.
Report #: G7563.01
Date: 5/5/17 Tech: 265

REV	BY	DATE	PCR	DESCRIPTION
4	CRC	7/25/2016	N/A	ADDING INSTRUCTIONS TO DRAWING; REMOVED CC GRAY
3	CRC	7/30/2015	N/A	ADDED PAGE 2; ADDED REDWOOD AND BIRCHWOOD SKUS
2	CRC	3/31/2015	140929CHB-A	ADDED WHITE AND SAND INLINE
1	CC	6/5/2014	N/A	ADDED CC GRAY

TOLERANCES	
FRACTION	±1/16
XX	±0.01
XXX	±0.005
ANGLE	±1.0°
FINISH	125 RMS
UNLESS OTHERWISE SPECIFIED	

Barrette

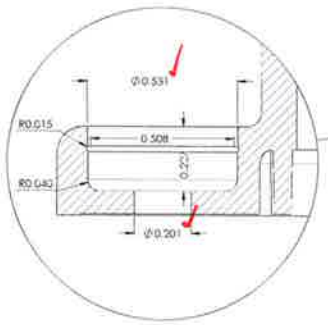
BARRETTE
Outdoor Living
740 N. Main St., Bulls Gap, TN 37711

DRAWN	DATE	APPROVED
D.WRIGHT	8/29/2013	

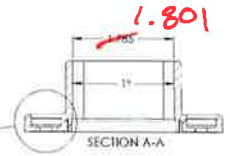
DESCRIPTION: 6X8 7' PRIVACY WHITE W/GL 72" .035 (QC)

SHEET 1 OF 3
SCALE 1:16
WEIGHT 48.46

REVISION: 4
PART NUMBER: CHART DRAWING



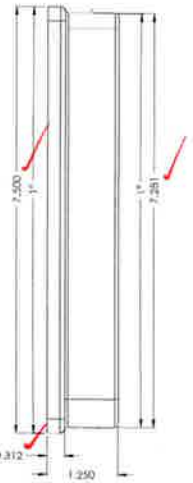
DETAIL C
SCALE 5 : 1

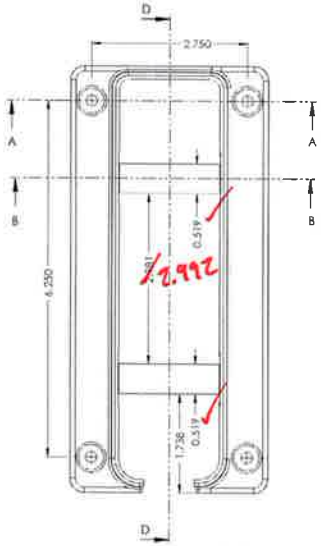


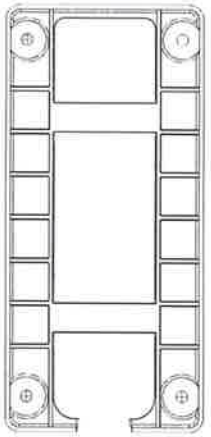
SECTION A-A

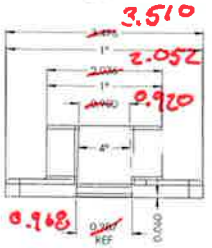
SECTION B-B

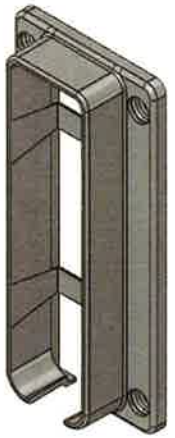
SECTION D-D

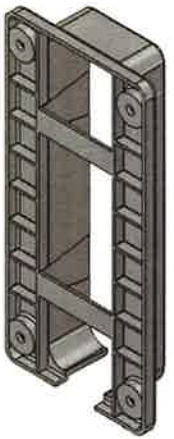












Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report # G7563.01

Date 5/5/17 Tech RGS

TOLERANCES UNLESS SPECIFIED
FRACTIONAL ± 1/64
ANGULAR ± 1/2°
XX ± 02
XXX ± 005
XXXX ± 001

LMT-MERCER GROUP

LMI-MERCER GROUP INC.
690 PUSTAN AVENUE
TAWAS CITY, MI 48763

UNIT DESCRIPTION:
CUSTOM IRON WORKS - 175 X 7.6 BRACKET

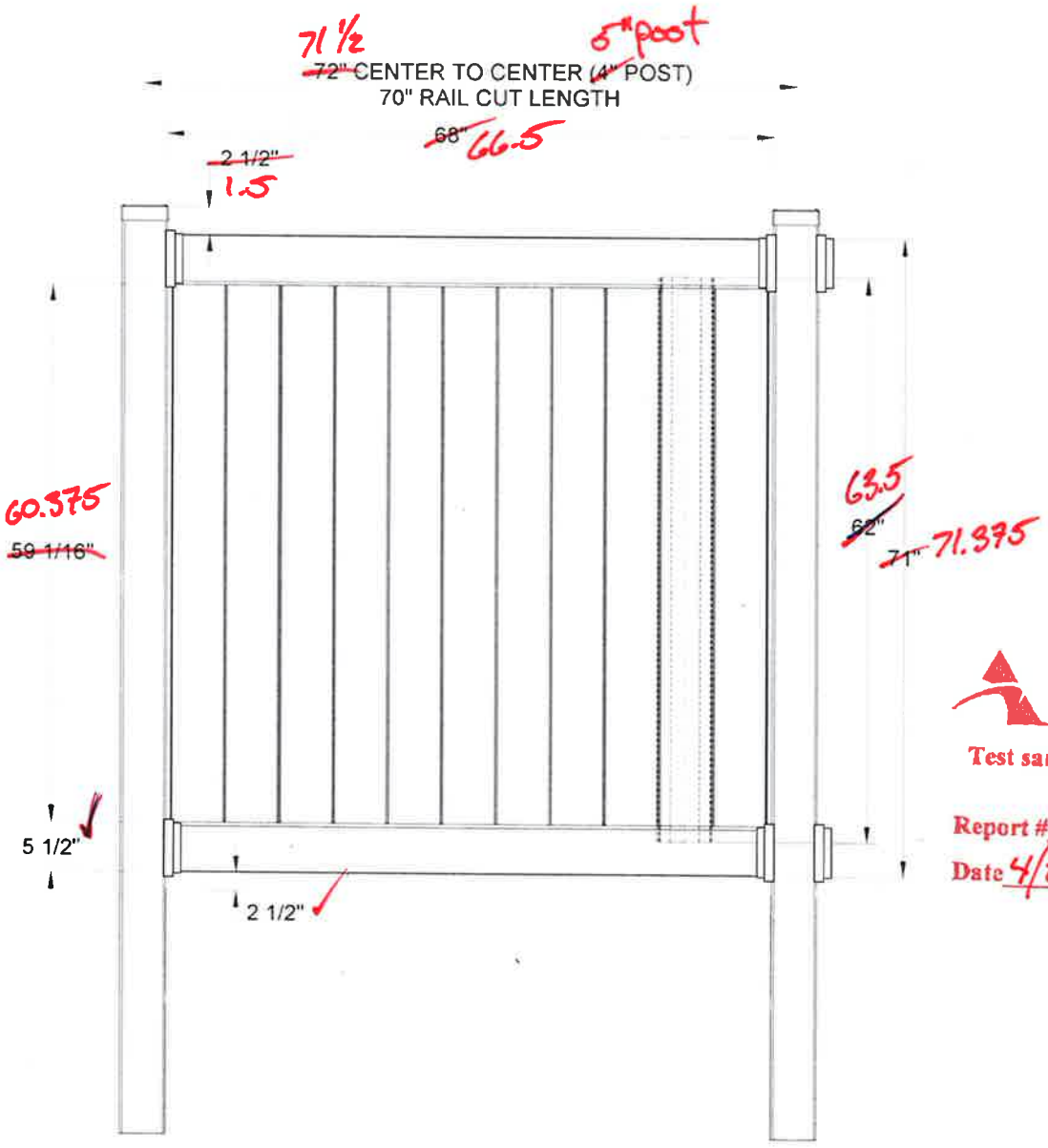
CUSTOMER: CUSTOM IRON WORKS
PART NUMBER: 1220

MOLD NUMBER: 1472

SCALE: NOTED

REV: A

6′ High X 6′ Wide / ~~4~~ 5" Inch Post / 5.5 Inch Bracket_Illustration



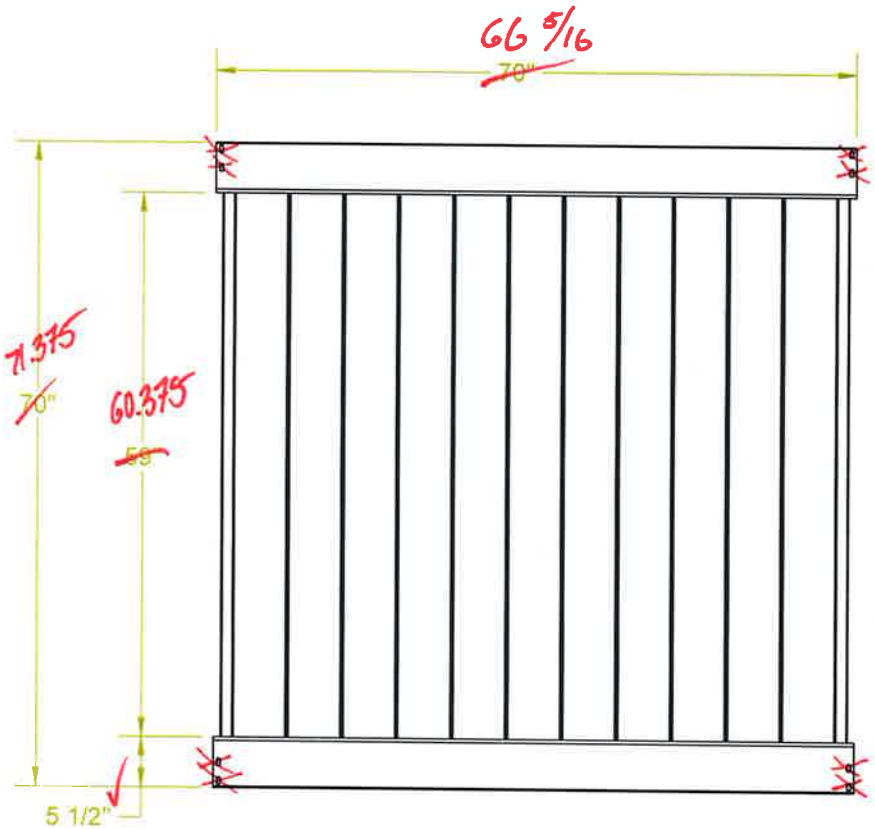
Architectural Testing

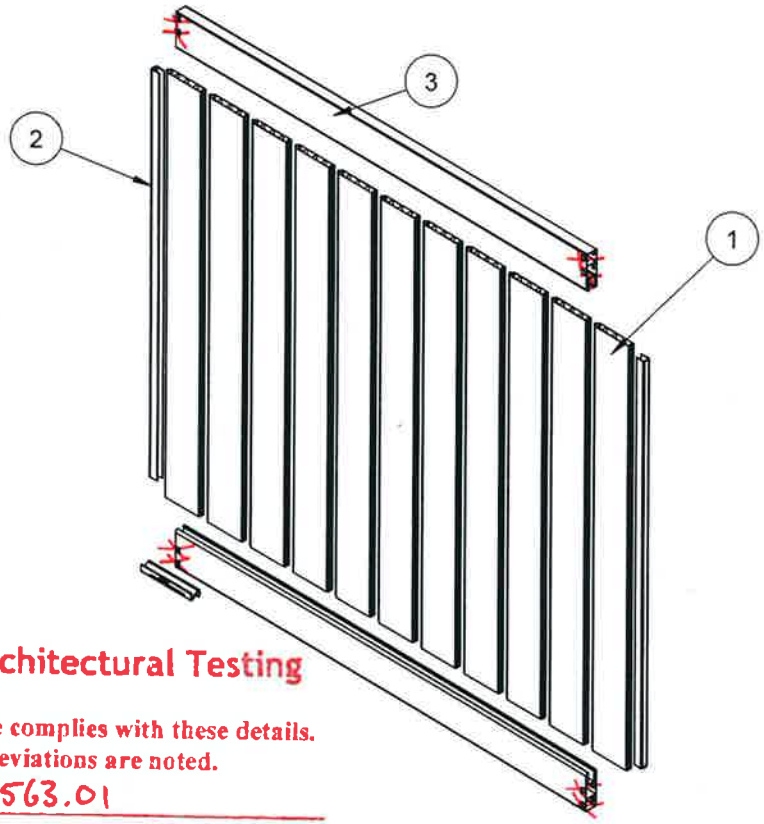
Test sample complies with these details.
Deviations are noted.

Report # G 7663.01

Date 4/27/17 Tech RGS

ITEM NO.	73014393 WHITE	73014393 WHITE INLINE (2)	73014396 SAND	73014396 SAND INLINE (2)	73014399 CYPRESS	73025616 KHAKI (4)	DESCRIPTION	QTY
1	61108628	61113193	61108629	61113194	61108630	61117062	.875X6X62.0 W/.035W EXTR T&G	11
(1) 2	61102956		61108631		61108632	61117058	1.02X1.379X59.5 EXTR U-CHANNEL	2
3	61109144		61109145		61108610	61117070	1.75X5.47X70 DECO EXTR WHITE	2
4	34107823						INSTRUCTIONS PRIVACY VINYL FENCE KIT	1





Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report # G7563.01

Date 4/27/17 Tech RGS

REV	BY	DATE	PCR	DESCRIPTION
4	DGW	10/24/2016	161024DGW-A	ADDED KHAKI
3	CRC	7/25/2016	N/A	ADDING INSTRUCTIONS TO DRAWING
2	CRC	3/31/2015	140929CHB-A	ADDED IN LINE SKU#'S
1	CRC	2/25/2015	150225DGW-A	UPDATED U-CHANNEL LENGTH

Barrette

BARRETTE
Outdoor Living
740 N. Main St., Bulls Gap, TN 37711

DRAWN: D.WRIGHT | DATE: 8/30/2013 | APPROVED:

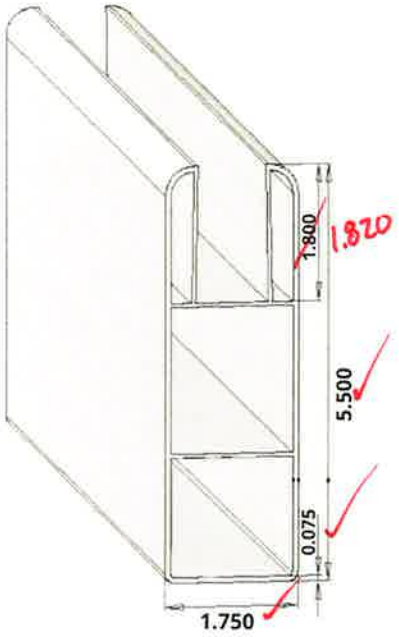
DESCRIPTION: 6X6 5.5" PRIVACY PANEL WHITE (Z)

SHEET 1 OF 2
SCALE 1:20
WEIGHT: 33.72

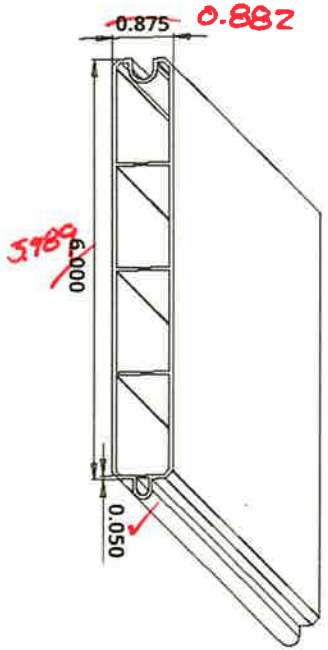
REVISION: (0)

PART NUMBER: CHART DRAWING

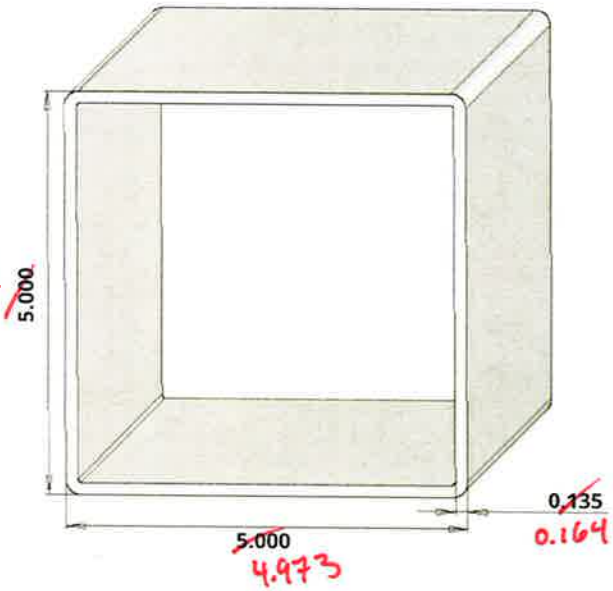
1-3/4" x 5-1/2" Rail Section



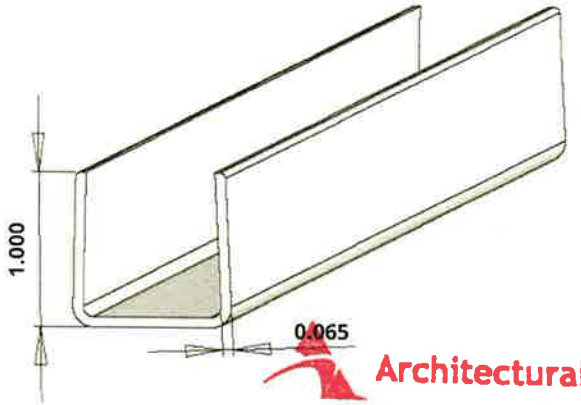
7/8" x 6" Picket



5" x 5" Post



7/8" U-Channel

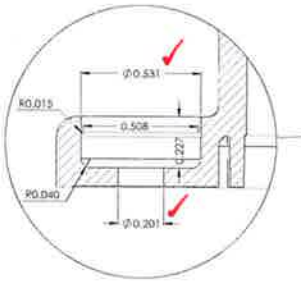


Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report # G7563.01

Date 5/31/17 Tech RGS



DETAIL H
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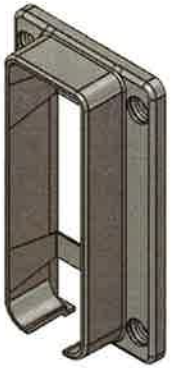
SECTION G-G

SECTION F-F



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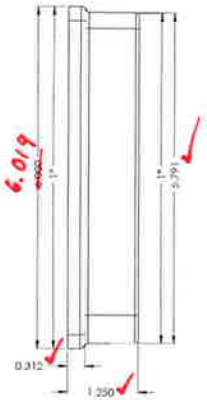

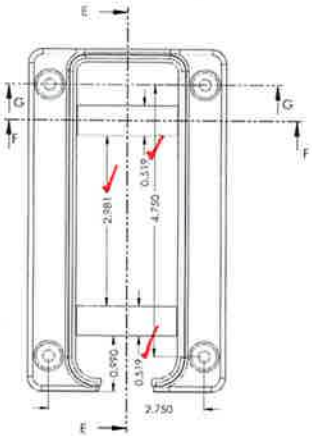

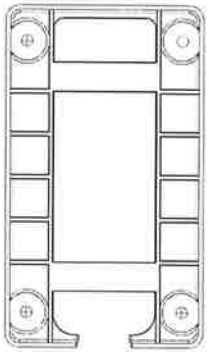

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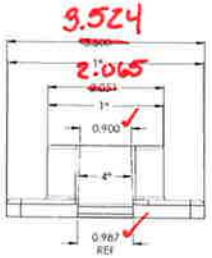

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report # G7563.01

Date 4/27/17 Tech RGS

TOLERANCES UNLESS SPECIFIED		LMT-MERCER GROUP	REV
FRACTIONAL	± 1/64	LMT-MERCER GROUP INC 690 PENNSAUKEN AVENUE LAWRENCEVILLE, NJ 08648	A
ANGULAR	± 1/2°		
XX	± .02		
XXX	± .005	SHEET DESCRIPTION	
XXXX	± .001	CASTING IRON WORKS 1.75 X 3.5 BRACKET	
DRAWN BY	DATE	CUSTOMER: CASTING IRON WORKS	COMPS 1.75 X 3.5 BRACKET DWG
APPROVED BY	DATE	PART NUMBER 1.750	
RELEASE DATE	DWG NO.	MOLD NUMBER 996	
		SCALE NOTED	SHEET

APPENDIX B

Photographs

Photo No. 1
Typical Dynamic Wind Test Setup

Photo No. 2
Transducer Locations on Backside of Fence Panels