



MANUFACTURER'S IDENTIFICATION

- 1.0 NAME OF APPLICANT:** ROLL-A-WAY Storm and Security Shutters
10601 Oak Street N.E.
St. Petersburg, FL33716
(727) 803-9283
- 2.0 CONTACT PERSON:** Mr. Don Fowler
- 3.0 HTL NOTIFICATION #:** N/A
- 4.0 HTL LAB CERTIFICATION #:** Miami- Dade County (01-0205.03), SBCCI (TL9704A),
Texas Department of Insurance (TDI), AAMA, Keystone Certifications

PRODUCT IDENTIFICATION

- 5.0 Product Type:** PVC Aluminum Rebar Reinforced Roll Down Shutter System
- 6.0 Model Number:** P55 Double End Retention Hanging Shutter
- 7.0 Performance Class:** N/A
- 8.0 Overall Sample Size:** varies
- 9.0 Configuration:** Operable; Single Span Shutter Assembly without Storm Bars
- 10.0 No./Size of Panels:** N/A
- 11.0 Drawing:** Roll-a-way Drawing # S-1102-EG and all accompanying sheets are incorporated into this test report by reference.

PRODUCT DESCRIPTION

12.0 DETAILED DESCRIPTION:

- 12.1 Shutter Components:** The shutter sample was fabricated using some or all of the following aluminum extrusions:

Description	Part #	Overall Cross Section	Alloy
System 1 ER Track End Retention	034013001	N/A	6063-T6
Main Slats – P55 DER Slats	011055101	2.194" x 0.551"	PVC
Starter Single Slat – US 60 Aluminum Slat	013016001	2.155" x 0.050"	6063-T6
Bottom Slat	011055201	2.000" X 0.050"	6063-T6

The following procedures (typical) were utilized when assembling the shutter sample:

Side Tracks Assembly: Each sidetrack is square cut at its ends and mounted directly to the opening as described in the installation section of this report.

Slat Assembly: All of the slats used in each sample are square cut at the ends and assembled into a roll shutter curtain by sliding the slats together. Both sidetrack members in this sample used to secure the slats to the openings were located such that the slats had a minimum engagement of 5/8" into each sidetrack with in retention screws.

6-Sided Shutter Box Assembly: The 6-sided shutter box assembly consists of the following components:

Description	Part #	Overall Cross Section	Alloy
6-sided "System 1" 10" Die Cast Side Frame	10-6	N/A	N/A
SS Reinforcement Angles	231000020	1.500" x 1.000" x 0.060"	304L

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Description	Part #	Overall Cross Section	Alloy
3-1/2" header	3.5	N/A	6063-T6

Please refer to Roll-a-way Drawing # S-1102-EG for additional details on the overall assembly of the shutter box.

5-Sided Shutter Box Assembly: The 5-sided shutter box assembly consists of the following components:

Description	Part #	Overall Cross Section	Alloy
5-sided "System 1" 10" Die Cast Side Frame	10-5	N/A	N/A
Aluminum Angles	1.5X1	1.500" x 1.000" x 0.094"	6063-T5
3-1/2" header	3.5	N/A	6063-T6

Please refer to Roll-a-way Drawing # S-1102-EG for additional details on the overall assembly of the shutter box.

PRODUCT INSTALLATION

13.0 The following section of this report details how this specimen was installed into the CMU opening:

- 13.1 Sidetracks:** The sidetracks used in each sample was mechanically attached to the CMU opening using a single row of 1/4" x 1-3/4" Tapcons spaced 3" away from the bottom end of each track 8" on center thereafter.
- 13.2 6-Sided Shutter Box Assembly:** The 6-sided shutter box assembly used in this sample was secured to the opening directly at either end via the SS Reinforcement angles. Each SS Reinforcement Angle is attached to the opening through the Die Cast Side Frame using two (2), 1/4" x 2-1/4" Tapcons located 1/2" away from the end of the angle. There is a 3-1/2" header (Part #3.5) that is butted against the side frame and is attached to the SS Reinforcement Angle using two (2) 1/4-20 x 3/4" SS bolts and nuts.
- 13.3 5-Sided Shutter Box Assembly:** The 5-sided shutter box assembly used in this sample was secured to the opening directly at either end via the 5" long internal Aluminum Angles. Each Aluminum Angle is attached to the opening through the Die Cast Side Frame using two (2), 1/4" x 2-1/4" Tapcons located 1/2" away from the end of the angle. The Aluminum Angle is attached to the Side Frame using three (3) #56 SS Pop Rivets.
- 13.4 Storm Bars:** None Used.

TEST RESULTS

14.0 TEST CONCLUSION: HTL Test # 0006-0106-03:

Specimen #	Test Method	Test Remarks	Test Conclusion
2 102" (w) x 82" (h)	Large Missile Impact Test (TAS 201, SSTD 12-99, and ASTM E1886/E1996)	The corner impact caused a 30" crack along the top of the P55 DER slat and a 7" crack along the bottom of the P55 DER slat.	PASS

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Specimen #	Test Method	Test Remarks	Test Conclusion
3 102" (w) x 82" (h)	Large Missile Impact Test (TAS 201, SSTD 12-99, and ASTM E1886/E1996)	The corner impact caused a 2" crack along the P55 DER slat.	PASS
4 102" (w) x 82" (h)	Large Missile Impact Test (TAS 201, SSTD 12-99, and ASTM E1886/E1996)	Both impacts went well.	PASS
5 41" (w) x 82" (h)	Large Missile Impact Test (TAS 201, SSTD 12-99, and ASTM E1886/E1996)	Both impacts went well.	PASS
6 41" (w) x 82" (h)	Large Missile Impact Test (TAS 201, SSTD 12-99, and ASTM E1886/E1996)	Both impacts went well.	PASS
7 41" (w) x 82" (h)	Large Missile Impact Test (TAS 201, SSTD 12-99, and ASTM E1886/E1996)	Both impacts went well.	PASS

HTL Job # 0006-0106-03 Specimen #2 – 102" Slat Span (6-Sided Shutter Box Assembly)

15.0 TEST SEQUENCE:

Large Missile Impact Test.

16.0 LARGE MISSILE IMPACT TEST:

16.1 TEST DATA:

Missile Length: 97 in

Missile Weight: 9 lbs.

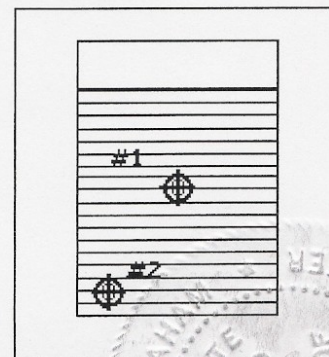
Impact #	Velocity (ft/sec)	Instant Deflection (in.)	Permanent Deflection (in.)	X Coordinate (in.)	Y Coordinate (in.)
1	49.11	2.80	0.16	50.00	35.00
2	49.67	1.35	1.10	10.00	7.25

16.2 TEST OBSERVATIONS:

Each impact test conducted on this specimen was performed in accordance with the requirements of SSTD 12-99 and ASTM E1886.

The corner impact caused a 30" crack along the top of the P55 DER slat and a 7" crack along the bottom of the P55 DER slat.

All of the impacts hit their intended targets resulting in the recorded measurements.



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HTL Job # 0006-0106-03 Specimen #3– 102" Slat Span (6-Sided Shutter Box Assembly)

17.0 TEST SEQUENCE:

Large Missile Impact Test.

18.0 LARGE MISSILE IMPACT TEST:

18.1 TEST DATA:

Missile Length: 97 in

Missile Weight: 9 lbs.

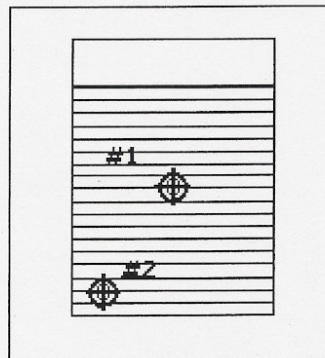
Impact #	Velocity (ft/sec)	Instant Deflection (in.)	Permanent Deflection (in.)	X Coordinate (in.)	Y Coordinate (in.)
1	49.62	3.92	0.09	56.00	36.00
2	49.77	1.55	1.12	12.00	10.50

18.2 TEST OBSERVATIONS:

Each impact test conducted on this specimen was performed in accordance with the requirements of SSTD 12-99 and ASTM E1886.

The corner impact caused a 2" crack along the P55 DER slat.

All of the impacts hit their intended targets resulting in the recorded measurements.



HTL Job # 0006-0106-03 Specimen #4– 102" Slat Span (6-Sided Shutter Box Assembly)

19.0 TEST SEQUENCE:

Large Missile Impact Test.

20.0 LARGE MISSILE IMPACT TEST:

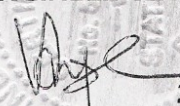
20.1 TEST DATA:

Missile Length: 97 in

Missile Weight: 9 lbs.

Impact #	Velocity (ft/sec)	Instant Deflection (in.)	Permanent Deflection (in.)	X Coordinate (in.)	Y Coordinate (in.)
1	49.90	4.02	0.20	53.50	38.50
2	49.60	0.74	0.18	17.50	10.50

ENGINEER OF RECORD

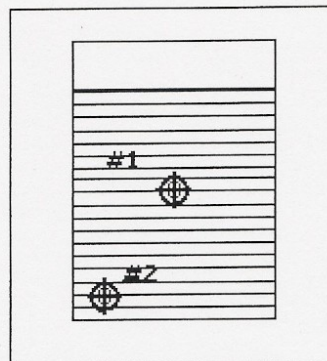

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20.2 TEST OBSERVATIONS:

Each impact test conducted on this specimen was performed in accordance with the requirements of SSTD 12-99 and ASTM E1886.

All of the impacts hit their intended targets resulting in the recorded measurements.



HTL Job # 0006-0106-03 Specimen #5- 41" Slat Span (5-Sided Shutter Box Assembly)

21.0 TEST SEQUENCE:

Large Missile Impact Test.

22.0 LARGE MISSILE IMPACT TEST:

22.1 TEST DATA:

Missile Length: 97 in

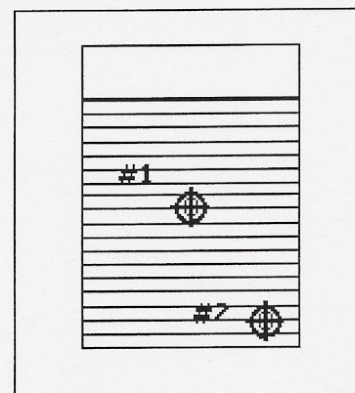
Missile Weight: 9 lbs.

Impact #	Velocity (ft/sec)	Instant Deflection (in.)	Permanent Deflection (in.)	X Coordinate (in.)	Y Coordinate (in.)
1	49.85	0.44	0.01	21.50	36.50
2	49.12	0.64	0.60	31.00	8.50

22.2 TEST OBSERVATIONS:

Each impact test conducted on this specimen was performed in accordance with the requirements of SSTD 12-99 and ASTM E1886.

All of the impacts hit their intended targets resulting in the recorded measurements.



HTL Job # 0006-0106-03 Specimen #6- 41" Slat Span (5-Sided Shutter Box Assembly)

23.0 TEST SEQUENCE:

Large Missile Impact Test.

ENGINEER OF RECORD

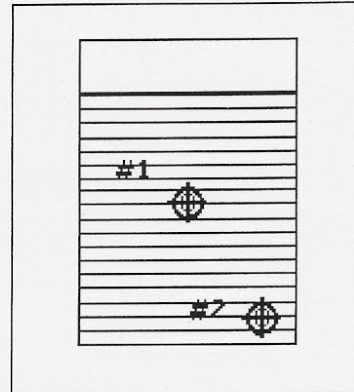
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26.2 TEST OBSERVATIONS:

Each impact test conducted on this specimen was performed in accordance with the requirements of SSTD 12-99 and ASTM E1886.

All of the impacts hit their intended targets resulting in the recorded measurements.



MISCELLANEOUS INFORMATION

27.0 CERTIFICATION & DISCLAIMER STATEMENT:

The test and the results summarized in this test report were conducted in accordance with the specifications of the applicable codes, standards & test methods listed below by the Hurricane Test Laboratory, Inc. located at 6655 Garden Road, Riviera Beach, FL 33404. This report is only intended for the use of the entity named in section 1.0 of this report. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the referenced specification.

28.0 APPLICABLE CODES, STANDARDS & TEST METHODS:

ASTM E1886 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missiles(s) and Exposed to Cyclic Pressure Differentials.

ASTM E1996 – Standard Specification for Performance of Exterior Walls, Glazed Curtain Walls, Doors, and Storm Shutters Impacted by Windborne Debris in Hurricanes.

SBCCI SSTD 12-99 – Test Standard for Determining Impact resistance from Windborne Debris.

29.0 LIST OF OFFICIAL OBSERVERS:

Vinu Abraham – HTL, Professional Engineer

José Colón – HTL, E.I.

Urmilla Jokhu-Sowell - HTL, E.I.T.

Terry Roberts – HTL, Technician

Ronald Nixon Sr. – HTL, Technician





24.0 LARGE MISSILE IMPACT TEST:

24.1 TEST DATA:

Missile Length: 97 in

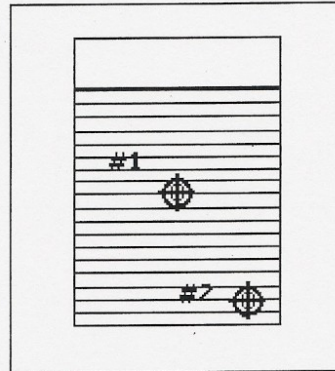
Missile Weight: 9 lbs.

Impact #	Velocity (ft/sec)	Instant Deflection (in.)	Permanent Deflection (in.)	X Coordinate (in.)	Y Coordinate (in.)
1	49.62	0.82	0.29	20.00	38.00
2	49.48	0.64	0.50	30.50	9.00

24.2 TEST OBSERVATIONS:

Each impact test conducted on this specimen was performed in accordance with the requirements of SSTD 12-99 and ASTM E1886.

All of the impacts hit their intended targets resulting in the recorded measurements.



HTL Job # 0006-0106-03 Specimen #7- 41" Slat Span (5-Sided Shutter Box Assembly)

25.0 TEST SEQUENCE:

Large Missile Impact Test.

26.0 LARGE MISSILE IMPACT TEST:

26.1 TEST DATA:

Missile Length: 97 in

Missile Weight: 9 lbs.

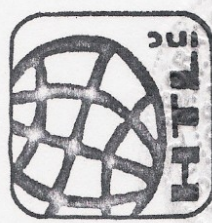
Impact #	Velocity (ft/sec)	Instant Deflection (in.)	Permanent Deflection (in.)	X Coordinate (in.)	Y Coordinate (in.)
1	49.75	0.95	0.51	32.00	8.50
2	49.55	0.84	0.32	20.00	36.00

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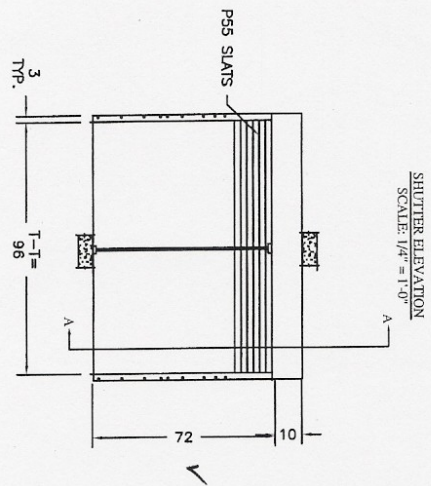
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Date 2-12-03
 Job# 0000-0106-03

AS TESTED UNLESS
 OTHERWISE NOTED

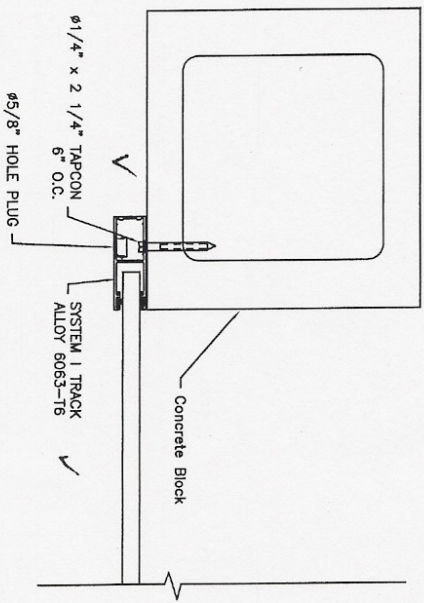


Hurricane Test Laboratory, Inc

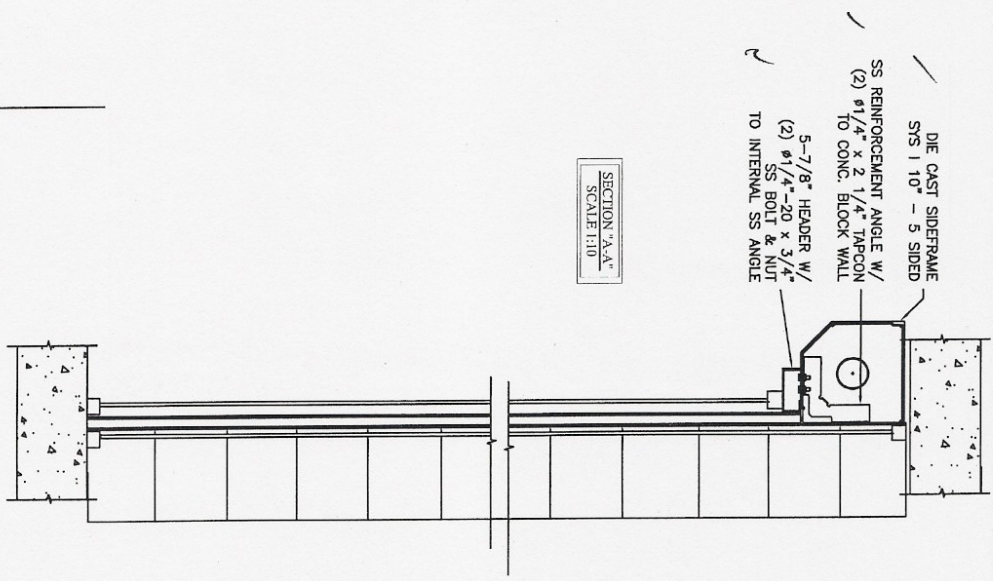


SEE DETAIL "A"
 TYP. 2 PLACES

DETAIL "A"
 SCALE 1:4

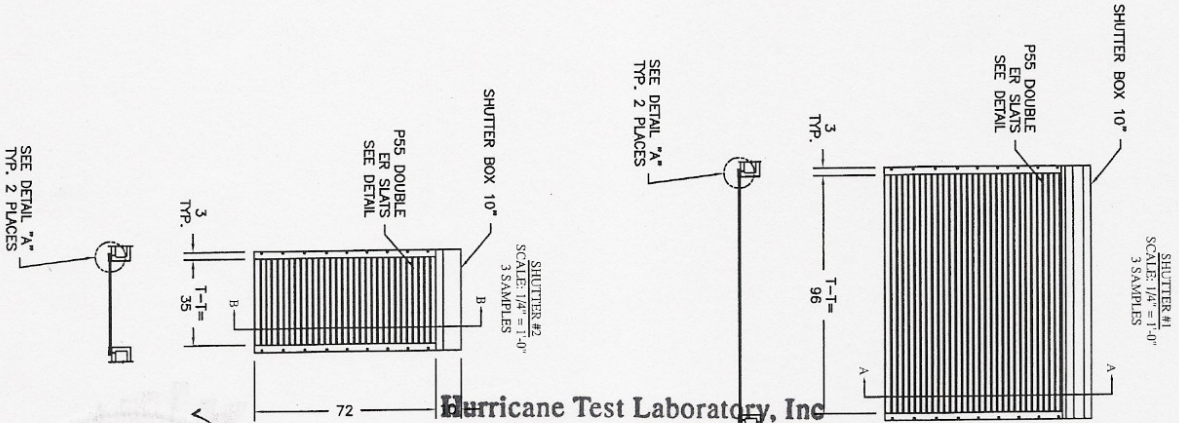


SECTION "A-A"
 SCALE 1:10



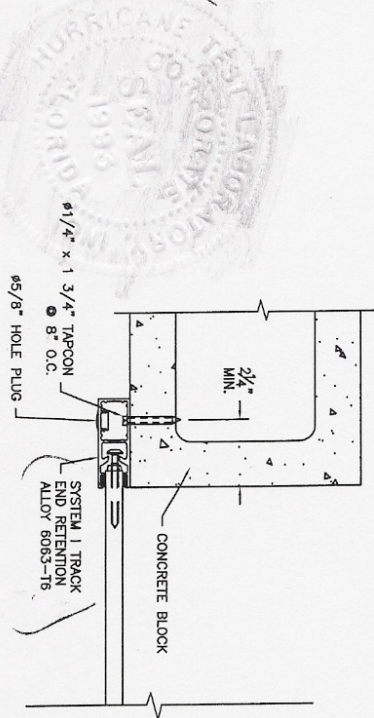
- NOTES:
1. R & D TESTING OF SS CABLE PURLIN.
 2. UNIFORM STATIC TESTING, STARTING AT 20PSF AND INCREASING 20PSF UNTIL FAILURE.
 3. TESTING TO BE POSITIVE ~~AND NEGATIVE~~.
 4. DEFLECTION TO MEASURED AT MID SPAN WIDTH & MID SPAN HEIGHT.

DRAWN: <u>DF</u>		DATE: <u>11-8-02</u>		10501 OAK STREET N.E. ST. PETERSBURG, FL 33716 COPYRIGHT © 2002 VALCO ENTERPRISES, LTD.		THIRD ANGLE PROJECTION		REVISION	
CHECKED:		DATE:				CUSTOMER: R & D VALCO		REV	DESCRIPTION
MEASURER:		DATE:						A	
APPROVED:		DATE:						B	
SIZE: <u>B</u>	DRAWING NO: <u>S-1102-EG-1</u>	REV: <u>-</u>	TITLE: <u>TESTING SHUTTER LAYOUT</u>			C		D	
SCALE: <u>AS NOTED</u>		SHEET <u>1</u> OF <u>1</u>				E			



AS TESTED UNLESS OTHERWISE NOTED

Date 02-12-03
Job# 0006-D100-03

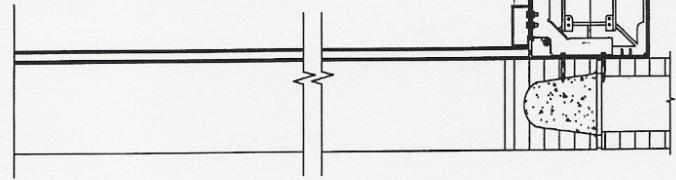


SECTION "A-A"
SCALE 1:10

DIE CAST SIDERRAME
SYS 1 10" - 6 SIDED

SS REINFORCEMENT ANGLE W/
(2) #1/4" x 2 1/4" TAPCON
TO CONCRETE BLOCK

3 1/2" HEADER W/
(2) #1/4" x 20 x 3/4"
SS BOLT & NUT
TO INTERNAL SS ANGLE

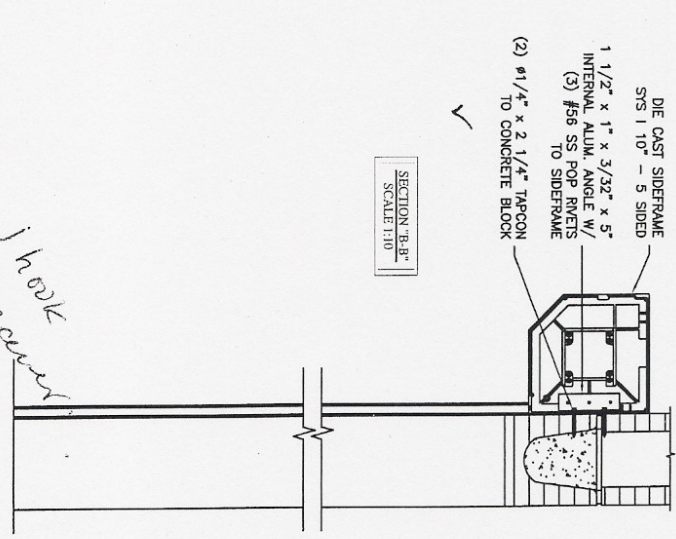


SECTION "B-B"
SCALE 1:10

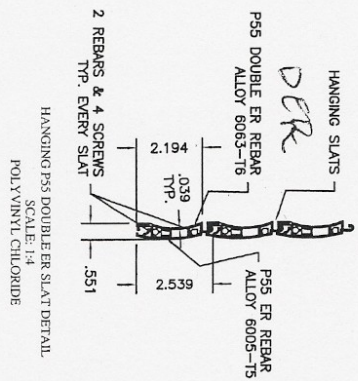
DIE CAST SIDERRAME
SYS 1 10" - 5 SIDED

1 1/2" x 1" x 3/32" x 5"
INTERNAL ALUM. ANGLE W/
(3) #56 SS POP RIVETS
TO SIDERRAME

(2) #1/4" x 2 1/4" TAPCON
TO CONCRETE BLOCK



NOTES:
1. LARGE MISSILE IMPACT TESTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2001, OUTSIDE HIGH VELOCITY HURRICANE ZONE.
2. 3 TEST SAMPLES OF EACH SHUTTER WERE IMPACTED TESTED.



DRAWN: PMW	DATE: 1-17-03
CHECKED:	DATE:
MEASURED:	DATE:
APPROVED:	DATE:
SIZE: B	DRAWING NO: S-1102-EG
SCALE: AS NOTED	SHEET 1 OF 1

Roll-a-way
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ST. PETERSBURG, FL 33716
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TITLE:
**P55 DOUBLE END RETENTION
HANGING SHUTTER
LARGE MISSILE IMPACT TEST**

REVISION	
REV	DESCRIPTION
A	
B	
C	
D	
E	