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January 15th, 2024

Riot Glass
17941 Brookshire Lane
Huntington Beach, CA 93647
ATTN: Don Mueller

Dear Mr. Mueller,

Enclosed, please find a copy of Oregon Ballistic Laboratories' test report entitled: ASTM F1233 - Test Report of Riot Glass FE Transparencies with 40" x 40" infill (AP375BR, AP375, and AP250) with Gen. I & II Frame, along with the photos of the Forced Entry, Concentrated Assault tests.

The Riot Glass Window System Generation I & II AP375BR, AP375, and AP250 Samples were given a class rating based on performance in the following report.

Very Respectfully,

Darius Nuttbrock
Ballistic Test Director
Oregon Ballistic Laboratories
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Email: dnuttbrock@oregonbl.com

ASTM F1233 - Test Report

Riot Glass FE Transparencies with 40" x 40" infill Generation I & II AP375BR,
AP375, and AP250

OBL 01152024

Prepared for

Riot Glass
17941 Brookshire Lane
Huntington Beach, CA 93647

By

Oregon Ballistic Laboratories, LLC
2873 22nd St. SE
Salem, Oregon 97302

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General Description

In December of 2023, Riot Glass submitted a request to test their Transparencies with 40" x 40" infill (AP375BR, AP375, and AP250) with Gen. I & II Framing to ASTM F1233. This request specified ASTM F1233 Forced Entry Testing to be conducted at Oregon Ballistic Laboratories.

The Transparencies and Gen. I & II Framing were shipped directly to Oregon Ballistic Laboratories, where preparations began for the January 10th, 2024 test date.

Oregon Ballistic Laboratories conducted Forced Entry tests on January 10th, 2024, on the Transparencies.

Sample Preparation

Upon arrival, the samples (Gen. I & II Framing with Transparencies) were uncrated and rigidly mounted against a heavy steel frame constructed of ½" thick structural steel.

Forced Entry Test Setup

Riot Glass requested that The Forced Entry Test Resources (tools) for the Concentrated Assault be used as specified in Table 2 "Forced Entry Sequence Of Testing" of F1233. The pass/fail shapes, a 8"x8"x 5" rigid rectangular shape (body passage) and a 1/8" solid shape (contraband), were provided to the attack teams. The names, ages, weights, shoulder circumference, and dominant hands of the test personnel for each test sequence are listed in the forced entry test results section tables. After every attack, test personnel were substituted on an as-needed basis. Photographs of the provided tools are located in Appendix A.

Photographs were taken before and after each test period. These photos are located in Appendix A.

Documentation

Customer was on sight for installation.

Forced Entry Test Results

Sample 1 – Gen. I Surface Mount AP375BR – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a 1/8th opening at Class 2.0 and was able to get the Fail Shape through at Class 3.2. The AP375BR transparency achieved a Rating of Class 3.1. Photographs of the resulting damage are located in Appendix A.

Sample 1 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Jason Stone	Right	161	46	41
Andrew Jacobson	Right	203	50	33

Sample 2 – Gen. I Surface Mount AP375 – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a 1/8th opening at Class 2.5 and was able to get the Fail Shape through at Class 3.0. The AP375 transparency achieved a Rating of Class 2.8. Photographs of the resulting damage are located in Appendix A.

Sample 2 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Chris Moe	Right	290	58.5	45
Jonathan Valladares	Right	185	52	30

Sample 3 – Gen. I Surface Mount AP250 – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a 1/8th opening at Class 1.5 and was able to get the Fail Shape through at Class 2.8. The AP25 transparency achieved a Rating of Class 2.7. Photographs of the resulting damage are located in Appendix A.

Sample 3 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Aaron Stone	Right	170	48	44
Andrew Jacobson	Right	203	50	33

Sample 4 – Gen. II Standard Frame AP250 – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a 1/8th opening at **Class 1.4** and was able to get the **Fail Shape** through at **Class 1.4**. The AP25 transparency achieved a **Rating of Class 1.3**. Photographs of the resulting damage are located in Appendix A.

Sample 4 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Chris Moe	Right	290	58.5	45
Jonathan Valladares	Right	185	52	30

Sample 5 – Gen. II Standard Frame AP375 – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a 1/8th opening at **Class 2.0** and was able to get the **Fail Shape** through at **Class 3.0**. The AP375 transparency achieved a **Rating of Class 2.8**. Photographs of the resulting damage are located in Appendix A.

Sample 5 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Aaron Stone	Right	170	48	44
Jason Stone	Right	161	46	41

Sample 6 – Gen. II Standard Frame AP375BR – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a 1/8th opening at **Class 2.4** and was able to get the **Fail Shape** through at **Class 3.0**. The AP375BR transparency achieved a **Rating of Class 2.8**. Photographs of the resulting damage are located in Appendix A.

Sample 6 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Chris Moe	Right	290	58.5	45
Jonathan Valladares	Right	185	52	30

Sample 7 – Gen. II Door Conversion AP375 – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a **1/8th** opening at **Class 2.0** and was able to get the **Fail Shape** through at **Class 3.0**. The AP375 transparency achieved a **Rating of Class 2.8**. Photographs of the resulting damage are located in Appendix A.

Sample 7 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Jerhemi Stone	Right	160	45	43
Darius Nuttbrock	Left	162	46	30

Sample 8 – Gen. II Door Conversion AP375BR – Test 1

The Forced Entry, Concentrated Assault team (shown in the table below) achieved a **1/8th** opening at **Class 1.5** and was able to get the **Fail Shape** through at **Class 3.1**. The AP375BR transparency achieved a **Rating of Class 3.0**. Photographs of the resulting damage are located in Appendix A.

Sample 8 – Test 1				
Name	Handed	Weight	Shoulder Cir.	Age
Aaron Stone	Right	170	48	44
Nathan Myers	Right	200	50	45

The toolset used for all attacks was F-1233 – 08 Table 2 “Forced Entry Sequence Of Testing” as seen below.

F1233 – 08 (2013)

TABLE 2 Forced Entry Sequence of Testing

Sequence	Test Implements	Impacts	Minutes	Amount	Class Achieved
1	Ball Peen Hammer	10			1.0
2	Ball Peen Hammer	10			1.1
3	1½-in. (4-cm) Diameter Pipe/Sledge	25			1.2
4	Extinguisher, CO ₂		1		1.3
5	Sledge Hammer	25			1.4
6	Propane Torch Flame		5 ^A		1.5
7	Ripping Bar	10			2.0
8	Ram	10			2.1
9	4-in. (10-cm) Diameter Pipe/Sledge	25			2.2
10	Sledge Hammer	25			2.3
11	Propane Torch Flame		5 ^B		2.4
12	Ripping Bar	10			2.5
13	Chisel/Hammer	25			2.6
14	Gasoline	4		½ Pint (¼ L)	2.7
15	Angle Iron/Sledge	25			2.8
16	Sledge Hammer	25			3.0
17	Ram	10			3.1
18	4-in. (10-cm) Diameter Pipe/Sledge	25			3.2
19	Sledge Hammer	25			3.3
20	Propane Torch Flame		5 ^B		3.4
21	Wood Splitting Maul	25			3.5
22	Sledge Hammer	25			3.6
23	Ripping Bar	10			3.7
24	Fire Axe	25			3.8
25	Chisel/Hammer	25			3.9
26	Acetone			½ Pint (¼ L)	3.10
27	Sledge Hammer	25			4.0
28	Ram	10			4.1
29	4-in. (10-cm) Diameter Pipe/Sledge	25			4.2
30	Sledge Hammer	25			4.3
31	Propane Torch Flame		5 ^B		4.4
32	Fire Axe	25			4.5
33	Sledge Hammer	25			4.6
34	Wood Splitting Maul	25			4.7
35	Chisel/Hammer	25			4.8
36	Sledge Hammer	25			4.9
37	Acetone			½ Pint (¼ L)	4.10
38	Fire Axe	25			4.11
39	Sledge Hammer	25			4.12
40	Chisel/Hammer	25			4.13
41	Wood Splitting Maul	25			5.0

^A For Class 1.5, the flame shall be extinguished with a fine mist of water immediately after the propane torch application.

^B For Classes 2.4, 3.4, and 4.4, if the sample continues to burn after removal of the flame (self-sustaining), it shall be allowed to burn an additional 10 min and then extinguished with a fine mist of water.

Conclusion

- The Riot Glass Transparency **Sample 1 - Gen. I Surface Mount AP375BR** achieved a **Class 3.1 Rating** defined by ASTM F1233.
- The Riot Glass Transparency **Sample 2 – Gen. I Surface Mount AP375** achieved a **Class 2.8 Rating** defined by ASTM F1233.
- The Riot Glass Transparency **Sample 3 – Gen. I Surface Mount AP250** achieved a **Class 2.8 Rating** defined by ASTM F1233.
- The Riot Glass Transparency **Sample 4 – Gen. II Standard Frame AP250** achieved a **Class 1.3 Rating** defined by ASTM F1233.
- The Riot Glass Transparency **Sample 5 – Gen. II Standard Frame AP375** achieved a **Class 2.8 Rating** defined by ASTM F1233.
- The Riot Glass Transparency **Sample 6 – Gen. II Standard Frame AP375BR** achieved a **Class 2.8 Rating** defined by ASTM F1233.
- The Riot Glass Transparency **Sample 7 – Gen. II Door Conversion AP375** achieved a **Class 2.8 Rating** defined by ASTM F1233.
- The Riot Glass Transparency **Sample 8 – Gen. II Door Conversion AP375BR** achieved a **Class 3.0 Rating** defined by ASTM F1233.

ASTM F1233 - Test Report

Riot Glass FE Transparencies with 40" x 40" infill Generation I & II AP375BR, AP375,
and AP250

Appendix A – Photographs

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OREGON BALLISTIC LABORATORIES
Sample 1 - Test 1 – Pre Test



Sample 1 - Test 1 – Post Test



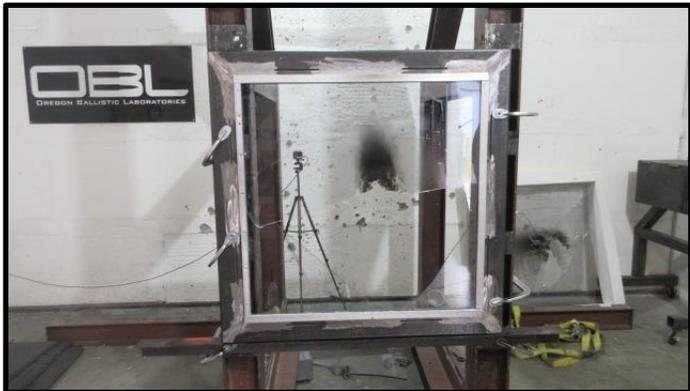
Sample 2 - Test 1 – Pre Test



This report pertains only to the samples tested and must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.



OREGON BALLISTIC LABORATORIES
Sample 2 - Test 1 – Post Test



Sample 3 - Test 1 – Pre Test



Sample 3 - Test 1 – Post Test



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Sample 4 - Test 1 – Pre Test



Sample 4 - Test 1 – Post Test





OREGON BALLISTIC LABORATORIES
Sample 5 - Test 1 – Pre Test



Sample 5 - Test 1 – Post Test



Sample 6 - Test 1 – Pre Test



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Sample 6 - Test 1 – Post Test



Sample 7 - Test 1 – Pre Test



Sample 7 - Test 1 – Post Test





Sample 8 - Test 1 – Pre Test



Sample 8 - Test 1 – Post Test

