OREGON BALLISTIC LABORATORIES

2873 22nd St SE
Salem, OR 97302

Tel: 503.540.8114
www.oregonbl.com
ISO/IEC 17025:2017 Accredited Laboratory
NVLAP Code: 200826-0
A2LA Certificate No.: 7169.01

October 10, 2024

Riot Glass
17941 Brookshire Lane
Huntington Beach, CA 93647
ATTN: Brad Campbell

Dear Mr. Campbell:

In accordance with your instructions, Oregon Ballistic Laboratories conducted Ballistic and Impact testing on three samples.
The samples were tested in accordance with ASTM F3561-22 in an indoor range with the muzzle of the test barrel mounted 20 feet from the target and positioned to produce 0-degree obliquity impacts. A doppler radar system was placed such that projectile velocity was measured 10 feet from the target. Penetrations were determined by examination of the sample. The sample was then tested for forced-entry. Forced-entry failures were determined by the use of a 6-in diameter sphere passing through the sample. Results for all testing performed for this purpose are summarized in the following table.

Model: Gen II AP2-WC-AP750BR								
Test Sample			Ballistic Threat				Results	
OBL No.:	Sample No.:	Dimensions(in.)	Projectile	Shots	Velocity (fps)		Penetrations	Resistance Level
					Min.	Max.		
38116	1-1	48x96	M193	10	3350	3401	10	***8***
38117	1-2	48x96	M193	10	3347	3401	10	***8***
38118	1-3	48x96	M193	10	3351	3401	10	***8***

*Data shown in the table represents fair impacts only.

The Model Achieved a Level 8 Forced-entry Resistance Rating

This report pertains only to the samples tested and may not be modified or edited in any way. This report may not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any federal government agency. Samples will be maintained at Oregon Ballistic Laboratories for 30 days and discarded unless other instructions are received. If you have any further questions or concerns, don't hesitate to contact us.

Reviewed by,

Digitally signed by Darius Nuttbrock
Date: 2024.11.07 06:35:31-08'00'

Darius Nuttbrock
Ballistic Test Director
Oregon Ballistic Laboratories
503.689.5134
Email: dnuttbrock@oregonbl.com

Prepared by,

Joshua Humphreys
Range Lead
Oregon Ballistic Laboratories
541.223.8026
Email: jhumphreys@oregonbl.com

OREGON BALLISTIC LABORATORIES

BALLISTIC RESISTANCE TEST - V_0

Customer:	Riot Glass
OBL ID#:	38116
Date Rcv'd:	10/7/2024
Test Date:	10/8/2024
Purchase Order:	

TEST SAMPLE

Sample No.: 1-1
Model No.: Gen II AP2-WC-AP750BR
Lot No.: N/A
Plies: N/A
Description: Gen II AP2-WC-AP750BR - Frames And Infills

Size (in.): 48 x 96
Weight (lb.): N/A
Thickness: N/A
Avg. Thk. (in):

RANGE SET-UP

Range to Target: 20 ft.
Screen Dist. Vel. 1 (ft.): 5
Screen Dist. Vel. 2 (ft.): 4
Screen 4 to target (ft): N/A
Primary Vel. Location: 8.25 ft. from target
Striking Velocity: No
Target to Witness: N/A
Witness Panel: N/A
Backing Material: N/A
Obliquity: 0 Degrees
Barrel: 5.56mm NATO/1:7/30"

Range #: 4
Temperature: 68.3 °F
Bar. Pressure: 29.92 in. Hg
Rel. Humidity: 46.0 %
Sample Temp. Amb. °F
Recorder: Jerhemi Stone
Gunner: Chris Moe

CLAY CALIBRATION NOT REQUIRED

Pre Test:
Clay Drops (mm):
Drop Avg (mm):
Clay Temp °F:
Clay Box #:
Post Test:
Clay Drops (mm):
Drop Avg (mm):
Clay Temp °F:

AMMUNITION

Projectile: 5.56mm M193 Ball
Powder: IMR 4227

STANDARDS / PROCEDURES

ASTM F3561-22
Required Velocity: 3370 fps ± 33 fps

SHOT NO.	PROJECTILE WT. (gr.)	POWDER WT. (gr.)	TIME 1 µs (10^{-6})	TIME 2 µs (10^{-6})	VELOCITY 1 ft/s	VELOCITY 2 ft/s	AVERAGE VELOCITY	PENET. P/C	OBLIQUITY	CALIPER BFD	NOTES
1	55.3	21.2	1477	1181	3385	3387	3386	C	0°		
2	55.2	21.2	1470	1176	3401	3401	3401	C	0°		
3	55.3	21.2	1481	1185	3376	3376	3376	C	0°		
4	55.0	21.2	1470	1176	3401	3401	3401	C	0°		
5	55.3	21.2	1475	1180	3390	3390	3390	C	0°		
6	55.2	21.2	1487	1190	3362	3361	3362	C	0°		
7	55.2	21.2	1493	1194	3349	3350	3350	C	0°		
8	55.2	21.2	1472	1178	3397	3396	3397	C	0°		
9	55.3	21.2	1485	1188	3367	3367	3367	C	0°		
10	55.3	21.2	1472	1178	3397	3396	3397	C	0°		

REMARKS:
P=Partial Penetration
C=Complete Penetration
UH=Unfair Hit
Projectile Yaw Check: <5° for all velocity shots

TEST RESULTS:
Test sample satisfied the requirements given.

FOOTNOTES:

Impact Number	Resistance Level	Pass / Fail	Description of Occurance
1	1	PASS	Cracking starting in the middle of the sample.
2	1	PASS	Cracks spreading.
3	2	PASS	Cracks spreading into the ballistic shots.
4	2	PASS	Continued cracking.
5	3	PASS	New cracks formimg.
6	3	PASS	Continued cracking.
7	4	PASS	No change.
8	4	PASS	Continued cracking.
9	5	PASS	No change.
10	5	PASS	Continued cracking into and through ballisitic locations.
11	6	PASS	No change.
12	6	PASS	Continued cracking.
13	7	PASS	Continued cracking.
14	7	PASS	Continued cracking.
15	8	PASS	Continued cracking.
16	8	PASS	Continued cracking.

OREGON BALLISTIC LABORATORIES

BALLISTIC RESISTANCE TEST - V_0

Customer: Riot Glass
OBL ID#: 38117
Date Rcv'd: 10/7/2024
Test Date: 10/8/2024
Purchase Order:

TEST SAMPLE
Sample No.: 1-2
Model No.: Gen II AP2-WC-AP750BR
Lot No.: N/A
Plies: N/A
Description: Gen II AP2-WC-AP750BR - Frames And Infills

Size (in.): 48 x 96
Weight (lb.): N/A
Thickness: N/A
Avg. Thk. (in):

RANGE SET-UP
Range to Target: 20 ft.
Screen Dist. Vel. 1 (ft.): 5
Screen Dist. Vel. 2 (ft.): 4
Screen 4 to target (ft): N/A
Primary Vel. Location: 8.25 ft. from target
Striking Velocity: No
Target to Witness: N/A
Witness Panel: N/A
Backing Material: N/A
Obliquity: 0 Degrees
Barrel: 5.56mm NATO/1:7/30"

Range #: 4
Temperature: 68.3 °F
Bar. Pressure: 29.92 in. Hg
Rel. Humidity: 46.0 %
Sample Temp. Amb. °F
Recorder: Jerhemi Stone
Gunner: Chris Moe

CLAY CALIBRATION NOT REQUIRED
Pre Test:
Clay Drops (mm):
Drop Avg (mm):
Clay Temp °F:
Clay Box #:
Post Test:
Clay Drops (mm):
Drop Avg (mm):
Clay Temp °F:

AMMUNITION
Projectile: 5.56mm M193 Ball
Powder: IMR 4227

STANDARDS / PROCEDURES
ASTM F3561-22
Required Velocity: 3370 fps ± 33 fps

SHOT NO.	PROJECTILE WT. (gr.)	POWDER WT. (gr.)	TIME 1 µs (10^{-6})	TIME 2 µs (10^{-6})	VELOCITY 1 ft/s	VELOCITY 2 ft/s	AVERAGE VELOCITY	PENET. P/C	OBLIQUITY	CALIPER BFD	NOTES
1	55.0	21.2	1494	1195	3347	3347	**3347**	C	0°		
2	55.1	21.2	1472	1178	3397	3396	**3397**	C	0°		
3	55.3	21.2	1485	1188	3367	3367	**3367**	C	0°		
4	55.6	21.2	1480	1184	3378	3378	**3378**	C	0°		
5	55.3	21.2	1471	1177	3399	3398	**3399**	C	0°		
6	55.1	21.2	1482	1186	3374	3373	**3374**	C	0°		
7	55.3	21.2	1475	1180	3390	3390	**3390**	C	0°		
8	55.3	21.2	1473	1179	3394	3393	**3394**	C	0°		
9	55.0	21.2	1470	1176	3401	3401	**3401**	C	0°		
10	55.1	21.2	1489	1192	3358	3356	**3357**	C	0°		

REMARKS:
P=Partial Penetration
C=Complete Penetration
UH=Unfair Hit
Projectile Yaw Check: <5° for all velocity shots

TEST RESULTS:
Test sample satisfied the requirements given.

FOOTNOTES:

Impact Number	Resistance Level	Pass / Fail	Description of Occurance
1	1	PASS	Cracking starting in the middle of the sample.
2	1	PASS	Cracking continued.
3	2	PASS	Cracking into ballistic locations.
4	2	PASS	Cracking continued.
5	3	PASS	Continueing to crack into ballistic locations and through them.
6	3	PASS	Cracking continued.
7	4	PASS	Cracking continued.
8	4	PASS	No change.
9	5	PASS	Continued cracking into ballistic locations and through them.
10	5	PASS	No change.
11	6	PASS	Cracking continued.
12	6	PASS	Cracking continued.
13	7	PASS	No change.
14	7	PASS	Cracking continued into and past ballistic locations.
15	8	PASS	Cracking continued into and past ballistic locations.
16	8	PASS	Cracking continued.

OREGON BALLISTIC LABORATORIES

BALLISTIC RESISTANCE TEST - V_0

Customer:	Riot Glass
OBL ID#:	38118
Date Rcv'd:	10/7/2024
Test Date:	10/8/2024
Purchase Order:	

TEST SAMPLE

Sample No.: 1-3
Model No.: Gen II AP2-WC-AP750BR
Lot No.: N/A
Plies: N/A
Description: Gen II AP2-WC-AP750BR - Frames And Infills

Size (in.): 48 x 96
Weight (lb.): N/A
Thickness: N/A
Avg. Thk. (in):

RANGE SET-UP

Range to Target: 20 ft.
Screen Dist. Vel. 1 (ft.): 5
Screen Dist. Vel. 2 (ft.): 4
Screen 4 to target (ft): N/A
Primary Vel. Location: 8.25 ft. from target
Striking Velocity: No
Target to Witness: N/A
Witness Panel: N/A
Backing Material: N/A
Obliquity: 0 Degrees
Barrel: 5.56mm NATO/1:7/30"

Range #: 4
Temperature: 68.3 °F
Bar. Pressure: 29.92 in. Hg
Rel. Humidity: 46.0 %
Sample Temp. Amb. °F
Recorder: Jerhemi Stone
Gunner: Chris Moe

CLAY CALIBRATION NOT REQUIRED

Pre Test:
Clay Drops (mm):
Drop Avg (mm):
Clay Temp °F:
Clay Box #:
Post Test:
Clay Drops (mm):
Drop Avg (mm):
Clay Temp °F:

AMMUNITION

Projectile: 5.56mm M193 Ball
Powder: IMR 4227

STANDARDS / PROCEDURES

ASTM F3561-22
Required Velocity: 3370 fps ± 33 fps

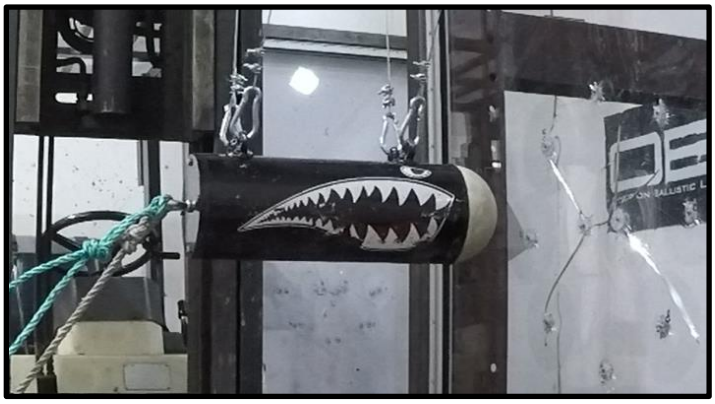
SHOT NO.	PROJECTILE WT. (gr.)	POWDER WT. (gr.)	TIME 1 µs (10^{-6})	TIME 2 µs (10^{-6})	VELOCITY 1 ft/s	VELOCITY 2 ft/s	AVERAGE VELOCITY	PENET. P/C	OBLIQUITY	CALIPER BFD	NOTES
1	55.1	21.2	1471	1176	3399	3401	3400	C	0°		
2	55.3	21.2	1489	1192	3358	3356	3357	C	0°		
3	55.3	21.2	1473	1179	3394	3393	3394	C	0°		
4	55.1	21.2	1470	1176	3401	3401	3401	C	0°		
5	55.2	21.2	1488	1190	3360	3361	3361	C	0°		
6	55.2	21.2	1487	1189	3362	3364	3363	C	0°		
7	55.5	21.2	1492	1194	3351	3350	3351	C	0°		
8	55.0	21.2	1485	1188	3367	3367	3367	C	0°		
9	54.8	21.2	1470	1176	3401	3401	3401	C	0°		
10	55.1	21.2	1485	1188	3367	3367	3367	C	0°		

REMARKS:
P=Partial Penetration
C=Complete Penetration
UH=Unfair Hit
Projectile Yaw Check: <5° for all velocity shots

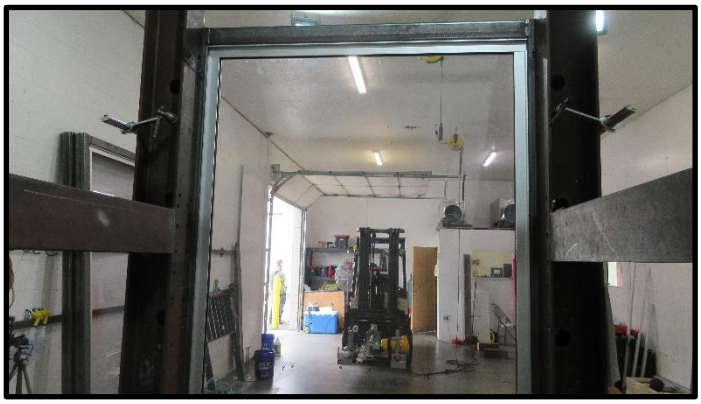
TEST RESULTS:
Test sample satisfied the requirements given.

FOOTNOTES:

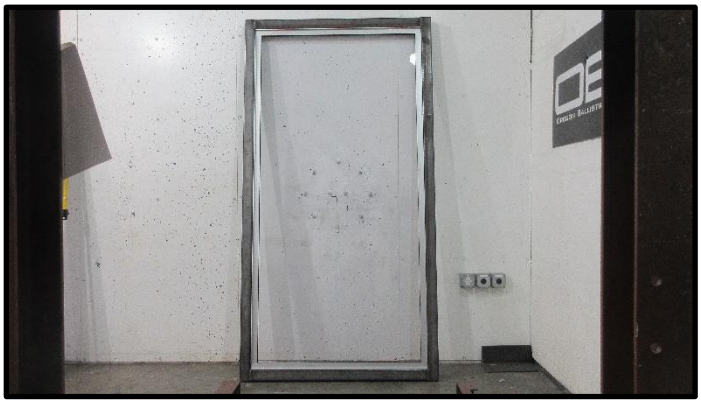
Impact Number	Resistance Level	Pass / Fail	Description of Occurance
1	1	PASS	Cracking starting in the middle of the sample.
2	1	PASS	Cracking continued.
3	2	PASS	Cracking spreading too the ballistic shots.
4	2	PASS	Cracking continued.
5	3	PASS	Cracking continuing into the ballistic locations.
6	3	PASS	Cracking continued.
7	4	PASS	Cracking contining to spread around the ballistic location through and between ballistic shots.
8	4	PASS	No change.
9	5	PASS	Cracking continued.
10	5	PASS	Cracking continued.
11	6	PASS	Cracking continued still spreading into ballistic shot locations, between, and past them.
12	6	PASS	No change.
13	7	PASS	Cracking continued.
14	7	PASS	Cracking continued.
15	8	PASS	Cracking continued.
16	8	PASS	Cracking continued.



ASTM F3561 Impactor



OBL #38116 – Pre Test



OBL #38116 – Post Test

OBL #38117 – Pre Test

OBL #38117 – Post Test

OBL #38118 – Post Test