

Ballistic Testing Services

Report Number: BTR-04-10-2023-Sample 1

Phone: 800-513-4291 Email: techsupport@CloseFocusResearch.com

CloseFocusResearch.com

Name: Midwest Glass Fabricators
 Address: PO Box 1509, 100 Transfer Dr. Highland, MI 48357
 Phone: Phone: 248-889-7900 | Direct 248-889-6237

Report Date: April 10, 2023
 Contact: Kyle Liedel
 Email: kliedel@mwgf.com

Ballistic Results

Project Summary

Type of Products to be tested: **Bullet Resistant Glazing**
 Test Specimen Sample size(s): **12 x 12 inch**
 Number of test specimens: **1 Sample**
 Weight of all samples: **24.4 lbs**
 Are Materials a Health Hazard: **No**
 Need the Tests performed by: **To be determined**
 Need products shipped back: **No**
 Purchase Order Number: **Not Applicable**

International Ballistic Standards / Specifications Testing

- ASTM Canadian FRA NIJ CFR Pass All
- Australian EN1063 Germ DIN State Dept CFR SYA
- British EN1522/23 MIL-SAMIT UL 752 Other

Test Standard: **Underwriters Laboratory UL752**
 Particular Test: **UL Level 8 (.30 cal. 7.62 NATO FMJ)**
 Velocity Range: **2,750 to 3,025 ft/s**
 Shots: **5 shots**
 Shot Pattern: **4.5 inch ± 0.5 inch square**

Test Results

Test Sample: **Sample 1**
 Item / Part Number: **1 / 04032023**
 Sample ID: **S-MWGF-008**
 Description: **Bullet Resistant Glazing**
 Sample Size: **12.0 x 12.0 inch (305 x 305 mm)**
 Thickness: **2.295 inch (58.3 mm)**
 Weight: **24.4 lbs (11.1 kg)**
 Weapon Type: **7.62 NATO**
 Cartridge / Projectile Type: **7.62 NATO / M80 FMJ**
 Projectile Weight: **150 grains**
 Target Distance: **15 feet**
 Number of Shots: **5 shots**

Shot Sequence:	Shot 1	Shot 2	Shot 3	Shot 4	Shot 5
Impact Velocity (ft/sec) *:	2,777	2,785	2,779	2,794	2,781
Impact Energy (ft-lbs):	2,568	2,583	2,572	2,600	2,575
Impact Momentum (lb-sec.):	1.85	1.85	1.85	1.86	1.85
Impact Angle (degrees):	0°	0°	0°	0°	0°
Sample Penetration:	NP	NP	NP	NP	NP
Witness Plate Penetration:	NP	NP	NP	NP	NP

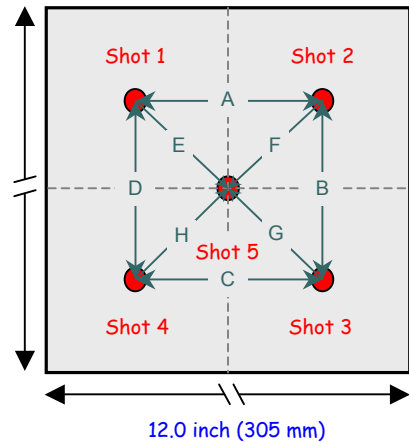
Witness Plate & Spall Result:

Witness plate material: **0.125 in. thick corrugated cardboard**
 Spall catch box: **Not required**
 Witness / Box Distance: **18.0 inches**
 Spall Occurrence: **No spall occurred**
 Test Temperature: **70 ° F**
 Test Date: **April 10, 2023**
 Pass / Fail Results: **Passed the Test**
 Comments:

Footnotes

* Velocity measurements were taken at a distance of 6 feet from muzzle.

12.0 inch
(305 mm)



Impact Spacing	(inches)	
A	4.50	Average
B	4.50	
C	4.30	
D	4.50	Average
E	3.10	
F	3.10	
G	3.10	
H	3.10	

NP = No Penetration
 PP = Partial Penetration
 CP = Complete Penetration
 N/A = Not Applicable

Test and Report Engineers

Tested and Reported by: **Sam Raheb**

Signature: *Sam Raheb*

Date: **April 10, 2023**

Name: **Midwest Glass Fabricators**

Report Date: **April 10, 2023**

Ballistic Test Results and Photographs

Ballistic Test Results:

Test Sample 1 passed the Underwriters Laboratory UL752 UL Level 8 (.30 cal. 7.62 NATO FMJ) Ballistic test. There was no complete penetration of the test sample from any of the 7.62 NATO / M80 FMJ caliber projectiles.

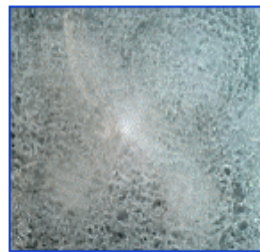
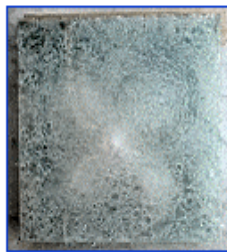
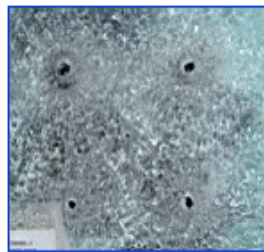
Witness Plate and Spall Effects:

No spall occurred or damage to the 0.125 in. thick corrugated cardboard witness plate was observed.

Photographs

The following photographs show the post-test sample. Additional larger sized photographs are included with this report.

Sample 1: 04032023 - S-MWGF-008 - UL Level 8 - 12.0 x 12.0 x 2.295 in.



Sample 1 Post Test Impact Side

Sample 1 Post Test Impact Side

Sample 1 Post Test Rear Side

Sample 1 Post Test Rear Side

Test and Report Engineers

Tested and Reported by: **Sam Raheb**

Signature: 

Date: **April 10, 2023**