

Ballistic Testing Services

Report Number: BTR-12-06-2019-Sample 7

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CloseFocusResearch.com

Name: Midwest Glass Fabricators  
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Report Date: December 6, 2019  
 Contact: Paul Mouton  
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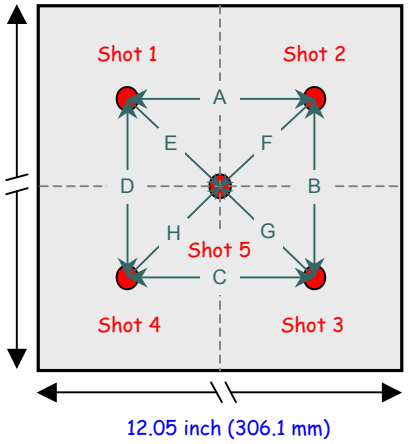
**Ballistic Results**

**Project Summary**  
 Type of Products to be tested: **Bullet Resistant Glazings**  
 Test Specimen Sample size(s): **12 x 12 inch**  
 Number of test specimens: **23 Samples**  
 Weight of all samples: **321.7 lbs**  
 Are Materials a Health Hazard: **No**  
 Need the Tests performed by: **within 7 to 10 days**  
 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: **National Institute of Justice 0108.01**  
 Particular Test: **NIJ II Part 1 (9 mm Parabellum FMJ)**  
 Velocity Range: **1,135 to 1,215 ft/s**  
 Shots: **5 shots**  
 Shot Pattern: **> 2 inch**

**Test Results**

Test Sample: **Sample 7**  
 Part Number / D.O.M.: **MWGF-NIJII-UL2- BR3 / November 7, 2019** 12.05 inch (306.1 mm)  
 Reference ID: **CFR NIJ II EN BR3 UL Level 2**  
 Description: **Security Glazing**  
 Sample Size: **12.05 x 12.05 inch (306.1 x 306.1 mm)**  
 Thickness: **1.075 inch (27.31 mm)**  
 Weight: **11.62 lbs (5.27 kg)**  
 Weapon Type: **9 mm Parabellum**  
 Cartridge / Projectile Type: **9 mm Parabellum FMJ**  
 Projectile Weight: **124 grains**  
 Target Distance: **16.4 feet**  
 Number of Shots: **5 shots**



Shot Sequence:	Shot 1	Shot 2	Shot 3	Shot 4	Shot 5
Impact Velocity (ft/sec) *:	1,151	1,168	1,145	1,167	1,175
Impact Energy (ft-lbs):	365	376	361	375	380
Impact Momentum (lb-sec.):	0.63	0.64	0.63	0.64	0.65
Impact Angle (degrees):	0°	0°	0°	0°	0°
Sample Penetration:	NP	NP	NP	NP	NP
Witness Plate Penetration:	NP	NP	NP	NP	NP

Impact Spacing (inches)		
A	5.90	Average 5.75
B	5.10	
C	6.60	
D	5.40	
E	3.50	Average 4.18
F	3.80	
G	4.50	
H	4.90	

**Witness Plate & Spall Result:**

Witness plate material: **0.020 in. type 2024-T4 Aluminum foil alloy**  
 Spall catch box: **Not required**  
 Witness / Box Distance: **6.0 inches**  
 Spall Occurrence: **No spall occurred**  
 Test Temperature: **70 ° F**  
 Test Date: **December 06, 2019**  
 Pass / Fail Results: **Passed the Test**  
 Comments: **CFR Reference for NIJ Level II Parts 1 & 2, UL Level 2, and EN1063 BR3 (9 mm HV and .357 Magnum HV)**

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

**Footnotes**

\* Velocity measurements were taken at a distance of 6.6 feet from muzzle.

**Test and Report Engineers**

Tested and Reported by: **Sam Raheb**

Signature: *Sam Raheb*

Date: **December 6, 2019**

Name: **Midwest Glass Fabricators**

Report Date: **December 6, 2019**

**Ballistic Test Results and Photographs**

**Ballistic Test Results:**

Test Sample 7 passed the National Institute of Justice 0108.01 NIJ II Part 1 (9 mm Parabellum FMJ) Ballistic test. There was no complete penetration of the test sample from any of the 9 mm Parabellum FMJ caliber projectiles.

**Witness Plate and Spall Effects:**

No spall occurred or damage to the 0.020 in. type 2024-T4 Aluminum foil alloy witness plate was observed.

**Photographs**

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

**Sample 7: MWGF-NIJII-UL2- BR3 - D.O.M. November 7, 2019 - CFR NIJ II EN BR3 UL Level 2 - NIJ II Part 1 - 12.05 x 12.05 x 1.075 in.**



Sample 7 Post Test Impact Side



Sample 7 Post Test Rear Side

**Test and Report Engineers**

Tested and Reported by: **Sam Raheb**

Signature: *Sam Raheb*

Date: **December 6, 2019**