

Ballistic Testing Services

Report Number: BTR-12-06-2019-Sample 22

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Name: Midwest Glass Fabricators
Address: PO Box 1509, 100 Transfer Dr. Highland, MI 48357
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Report Date: December 6, 2019
Contact: Paul Mouton
Email: pmouton@mwgf.com

Ballistic Results

Project Summary

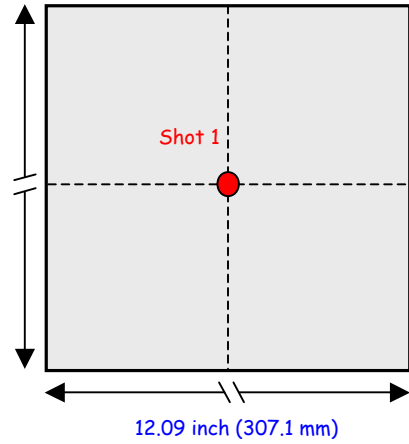
Type of Products to be tested: Bullet Resistant Glazings
Test Specimen Sample size(s): 12 x 12 inch
Number of test specimens: 23 Samples
Weight of all samples: 321.7 lbs
Are Materials a Health Hazard: No
Need the Tests performed by: within 7 to 10 days
Need products shipped back: No
Purchase Order Number: 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: Underwriters Laboratory UL752 (Ambient Temp. Only)
Particular Test: UL Level 9 Part 1 (.30 cal. 30-06 M2 AP)
Velocity Range: 2,715 to 2,987 ft/s
Shots: 1 shot
Shot Pattern: Center shot

Test Results

Test Sample: Sample 22
Part Number / D.O.M.: MWGF-NIJIV-UL9 / November 25, 2019 12.09 inch (307.1 mm)
Reference ID: CFR NIJ IV UL Level 9
Description: Security Glazing
Sample Size: 12.09 x 12.09 inch (307.1 x 307.1 mm)
Thickness: 2.880 inch (73.15 mm)
Weight: 34.80 lbs (15.79 kg)
Weapon Type: .30 caliber 30-06
Cartridge / Projectile Type: .30 caliber 30-06 M2 AP FMJ
Projectile Weight: 166 grains
Target Distance: 15 feet
Number of Shots: 1 shot
Shot Sequence: Shot 1
Impact Velocity (ft/sec)*: 2,828
Impact Energy (ft-lbs): 2,947
Impact Momentum (lb-sec.): 2.08
Impact Angle (degrees): 0°
Sample Penetration: NP
Witness Plate Penetration: NP
Impact Spacing (inches)**: N/A
Impact Spacing / Pattern: N/A
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: 72 ° F
Test Date: December 06, 2019
Pass / Fail Results: Passed the Test
Comments: CFR Reference for NIJ IV and UL Level 9 (.30-06 M2AP)



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

Footnotes

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

Test and Report Engineers

Tested and Reported by: Sam Raheb

Signature: [Handwritten Signature]

Date: December 6, 2019

Name: **Midwest Glass Fabricators**

Report Date: **December 6, 2019**

Ballistic Test Results and Photographs

Ballistic Test Results:

Test Sample 22 passed the Underwriters Laboratory UL752 UL Level 9 Part 1 (.30 cal. 30-06 M2 AP) Ballistic test. There was no complete penetration of the test sample from the .30 caliber 30-06 M2 AP FMJ caliber projectile.

Witness Plate and Spall Effects:

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

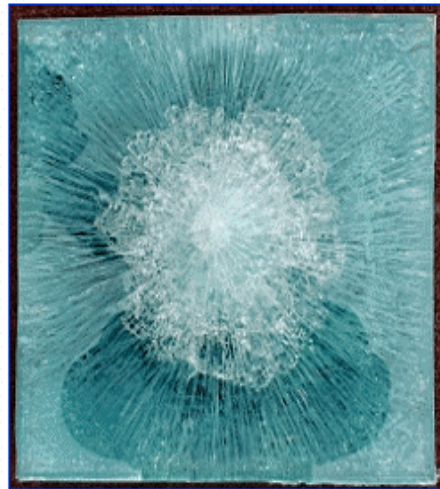
Photographs

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

Sample 22: MWGF-NIJIV-UL9 - D.O.M. November 25, 2019 - CFR NIJ IV UL Level 9 - UL Level 9 - 12.09 x 12.09 x 2.880 in.



Sample 22 Post Test Impact Side



Sample 22 Post Test Rear Side

Test and Report Engineers

Tested and Reported by: **Sam Raheb**

Signature: *Sam Raheb*

Date: **December 6, 2019**