

Ballistic Testing Services

Report Number: BTR-12-06-2019-Sample 14

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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

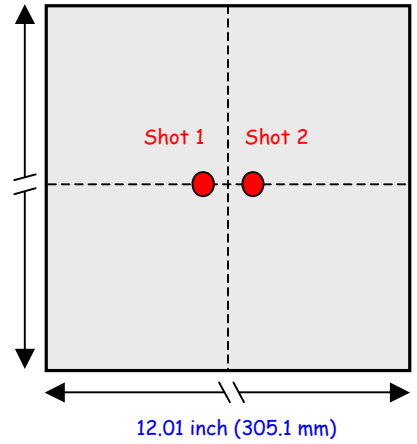
International Ballistic Standards / Specifications Testing
 ASTM Canadian FRA NIJ CFR Pass All
 Australian EN1063 Germ DIN State Dept CFR SYA
 British EN1522/23 MIL-SAMIT UL 752 Other
 Test Standard: Underwriters Laboratory UL752 (Ambient Temp. Only)
 Particular Test: UL Level 3 Part 2 (.44 Magnum SWC)
 Velocity Range: 1,350 to 1,485 ft/s
 Shots: 2 shots
 Shot Pattern: 1.25 to 1.75 inches

Test Results

Test Sample: Sample 14
 Part Number / D.O.M.: MWGF-NIJIIIA-UL3-ENBR4 / November 14, 2011.97 inch
 Reference ID: CFR NIJ IIIA EN BR4 UL Level 3 (304.0 mm)
 Description: Security Glazing
 Sample Size: 11.97 x 12.01 inch (304.0 x 305.1 mm)
 Thickness: 1.330 inch (33.78 mm)
 Weight: 13.59 lbs (6.17 kg)
 Weapon Type: .44 Magnum
 Cartridge / Projectile Type: .44 Magnum SWC
 Projectile Weight: 240 grains
 Target Distance: 15 feet
 Number of Shots: 2 shots
 Shot Sequence:

	Shot 1	Shot 2
Impact Velocity (ft/sec) *:	1,443	1,438
Impact Energy (ft-lbs):	1,109	1,102
Impact Momentum (lb-sec.):	1.54	1.53
Impact Angle (degrees):	0°	0°
Sample Penetration:	NP	NP
Witness Plate Penetration:	N/A	N/A
Impact Spacing (inches) **:	N/A	1.13

Impact Spacing / Pattern: N/A
 Witness plate material: Not required
 Spall catch box: Not required
 Witness / Box Distance: Not required
 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 Level IIIA Parts 1 & 2, UL Level 3, EN1063 BR4 (9 mm HV and .44 Magnum)



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.
 ** Impact Spacing is the distance between shots. (shot 1= N/A, shot 2 = 1 to 2)

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 14 passed the Underwriters Laboratory UL752 UL Level 3 Part 2 (.44 Magnum SWC) Ballistic test. There was no complete penetration of the test sample from any of the .44 Magnum SWC caliber projectiles.

Witness Plate and Spall Effects:

No spall occurred and no witness plate was required.

Photographs

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

Sample 14: MWGF-NIJIIIA-UL3-ENBR4 - D.O.M. November 14, 2019 - CFR NIJ IIIA EN BR4 UL Level 3 - UL Level 3 Part 2 - 11.97 x 12.01 x 1.330 in.



Sample 14 Post Test Impact Side



Sample 14 Post Test Rear Side

Test and Report Engineers

Tested and Reported by: **Sam Raheb**

Signature: *Sam Raheb*

Date: **December 6, 2019**