

Ballistic Testing and Design Services

Report Number: BTR-12-23-2005-TBD-Sample 1

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Report Date: [December 23, 2005](#)  
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**Ballistic Results**

**Project Summary**

Type of Products to be tested: **Ballistic Material**  
 Test Specimen Sample size(s): **12 x 12 inch nominal**  
 Number of test specimens: **1 Sample**  
 Weight of all samples: **33.5 lbs**  
 Are Materials a Health Hazard: **No**  
 Need the Tests performed by: **January 10, 2006**  
 Need products shipped back: **Yes**  
 Purchase Order Number: **TBD**

**International Ballistic Standards / Specifications Testing**

ASTM  Brunswick  FRA  NIJ  CFR Pass All  
 Australian  Canadian  Germ DIN  State Dept  CFR SYA  
 British  EN 1063  MIL-SAMIT  UL 752  Other  
 Test Standard: **CFR Pass All**  
 Particular Test: **CFR-PA-08 (7.62 NATO M80)**  
 Velocity Range: **2,750 to 3,025 ft/s**  
 Number of Shots: **5 shots**  
 Spacing / Pattern: **4.3 inch square**

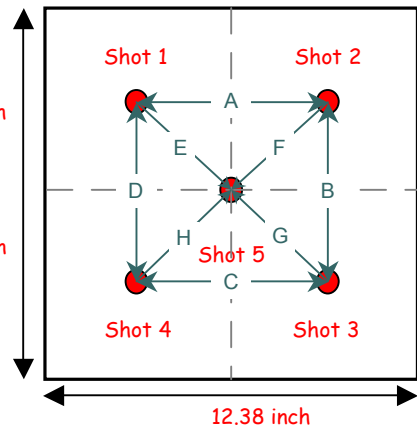
**Test Results**

Product Number: **Sample 1: 0.25 inch plate / 2.38 inch Aluminum Box**  
 Sample Type: **Ballistic Material**  
 Sample Size: **12.38 x 12.38 inch**  
 Thickness: **3.31 inch**  
 Weight: **33.5 lbs**  
 Weapon Type: **7.62 Rifle**  
 Cartridge / Projectile Type: **7.62 x 51 NATO M80**  
 Projectile Weight: **147 gr**  
 Target Distance: **15 ft**  
 Number of Shots: **5 shots**

NP = No Penetration  
 CP = Complete Penetration

Shot Sequence:	Shot 1	Shot 2	Shot 3	Shot 4	Shot 5
Impact Velocity (ft/sec) *:	2,920	2,915	2,922	2,927	2,916
Impact Energy ( ft-lbs):	2,783	2,773	2,786	2,796	2,775
Impact Momentum ( lb-sec.):	1.91	1.90	1.91	1.91	1.90
Impact Angle (degrees):	0 °	0 °	0 °	0 °	0 °
Penetration Effect:	NP	NP	NP	NP	NP
Bulge Height (inches) **::	0.00	0.00	0.00	0.00	0.00

Witness plate material: **0.001 in. thick Aluminum foil**  
 Witness Plate Distance: **6 inches**  
 Spall Occurrence: **None**  
 Test Temperature: **72 °F**  
 Test Date: **December 23, 2005**  
 Comments: **Passed the Test**



Impact Spacing (inches)		
A	4.52	Average 4.39
B	4.37	
C	4.46	
D	4.23	
E	3.07	Average 3.11
F	3.15	
G	3.20	
H	3.03	

**Comments and Test Descriptions**

- \* Velocity measurements were taken at a distance of 6.6 ft from muzzle
- \*\* The post impact Bulge Height is the distance between the apex of the extruded deformation bulge to the tangent plane of the flat surface. This measurement is taken from the side opposite to the impacts.

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**Test and Report Engineers**

Tested and Reported by: **Sam Wilson**

Signature: *Sam Wilson*

Date: **December 23, 2005**

Name: Shooting Ranges International

Report Date: December 23, 2005

Ballistic Test Results and Photographs

Ballistic Test Results:

The Sample was placed in a Ricochet catch box to observe if any fragments ricocheted back through the sample's impact surface. This Ballistic Material test sample passed the CFR Pass All - CFR-PA-08 (7.62 NATO M80) Ballistic test. No fragments ricocheted back through the impact surface.

Projectile Penetration Effects:

There was no partial or complete projectile penetration of the Ballistic Material sample for all 5 shots.

Witness Plate Spall Effects:

No Spall was observed.

Photographs

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

Sample 4: 0.25 inch plate / 2.38 inch Aluminum Box



Post test Impact Side



Post test Impact Side



Post test Impact Side



Post test Rear Side



Sample 4 Posttest Rear Side

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