

Ballistic Testing Services

Report Number: BTR-05-09-2017-Sample 1

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Report Date: May 9, 2017
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Ballistic Results

Project Summary

Type of Products to be tested: Concrete Wall Material
 Test Specimen Sample size(s): 12 x 12 inch
 Number of test specimens: 4 Samples
 Weight of all samples: 433.0 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
 Particular Test: UL Level 7 (.223 cal. 5.56 NATO FMJ)
 Velocity Range: 3,080 to 3,388 ft/s
 Shots: 5 shots
 Shot Pattern: 4.5 inch ± 0.5 inch square

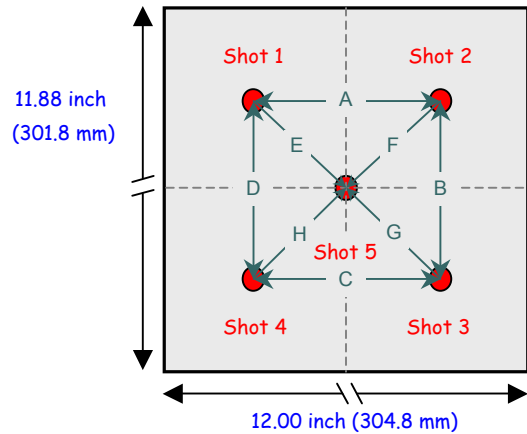
Test Results

Test Sample: Sample 1
 Item / Part Number: 1 / 12-12-4
 Sample ID: 4 inch Block
 Sample Type: Concrete Wall Material
 Sample Size: 11.88 x 12.00 inch (301.8 x 304.8 mm)
 Thickness: 4.25 inch (108.0 mm)
 Weight: 54 lbs (24 kg)
 Weapon Type: .223 caliber / 5.56 NATO
 Cartridge / Projectile Type: 5.56 NATO / M193 FMJ
 Projectile Weight: 55 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) *:	3,275	3,222	3,229	3,233	3,295
Impact Energy (ft-lbs):	1,310	1,268	1,273	1,276	1,326
Impact Momentum (lb-sec.):	0.80	0.79	0.79	0.79	0.80
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: 74 ° F
 Test Date: May 09, 2017
 Pass / Fail Results: Passed the Test



Impact Spacing (inches)		
A	4.10	Average 4.15
B	4.20	
C	4.30	
D	4.00	
E	3.10	Average 2.96
F	3.00	
G	2.75	
H	3.00	

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:

Date: May 9, 2017

Name: American Business Continuity Group

Report Date: May 9, 2017

Ballistic Test Results and Photographs

Ballistic Test Results:

Test Sample 1 passed the Underwriters Laboratory UL752 UL Level 7 (.223 cal. 5.56 NATO FMJ) Ballistic test. There was no complete penetration of the test sample from any of the 5.56 NATO / M193 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.

Projectile Hole Depth

Projectile Hole Depth		
Shot 1	1.60 in.	37.6% penetration
Shot 2	1.50 in.	35.3% penetration
Shot 3	1.66 in.	39.1% penetration
Shot 4	1.50 in.	35.3% penetration
Shot 5	1.75 in.	41.2% penetration
Average	1.60 in.	37.7% penetration

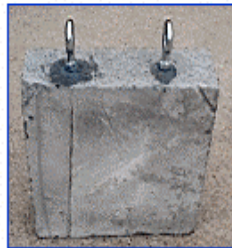
Photographs

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

Sample 1: 12-12-4 - 4 inch Block - UL Level 7 - 11.88 x 12.00 x 4.25 in.



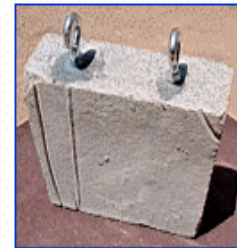
Pre Test Impact Side



Pre Test Rear Side



Post Test Impact Side



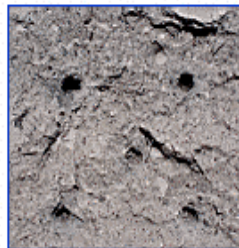
Post Test Rear Side



Post Test Impact Top Side



Post Test Impact Side



Post Test Impact Side



Post Test Rear Side



Post Test Rear Side

Test and Report Engineers

Tested and Reported by: Sam Raheb

Signature: *Sam Raheb*

Date: May 9, 2017