



BREAK and ENTRY PERFORMANCE TEST REPORT

Report No.: D5857.02-201-42

Rendered to:

3M COMPANY
St. Paul, Minnesota

PRODUCT TYPE: Safety and Security Window Film

Test Date: 02/26/14
And: 03/06/14
Report Date: 09/04/14

1.0 Report Issued To: 3M Company
Renewable Energy Division
St. Paul, Minnesota 55114

2.0 Test Laboratory: Architectural Testing, Inc.
849 Western Avenue North
St. Paul, Minnesota 55114
651-636-3835

3.0 Project Summary:

3.1 Product Type: Safety and Security Window Film

3.1.1 3M™ Scotchshield™ Safety and Security Film Ultra 600 (6 mil Microlayered)

3.1.2 3M™ Safety and Security Film, Safety S70 Exterior (7 mil)

3.2 Scope: Testing involved methodical attacks by an adult male to an entry door system including sidelites. Objective of the testing was to simulate an attack by an intruder with a firearm as the primary device to gain access through a door entryway. Testing was performed per the direction of 3M personnel.

3.3 Test Dates: 02/26/2014 and 03/06/2014

3.4 Test Record Retention End Date: All test records for this report will be retained until March 6, 2018.

3.5 Test Location: Architectural Testing, Inc. test facility in St. Paul, Minnesota.

3.6 Test Sample Source: The test specimens were provided by the client.

3.7 List of Official Observers:

<u>Name</u>	<u>Company</u>
Paul Neumann	3M Company
Eric J. Schoenthaler	Architectural Testing, Inc.

4.0 Test Specimen Description:

4.1 Test Specimen Description: The glazing that was tested was installed within a storefront entry system including two sidelites. The mockup consisted of a fully glazed outswing aluminum entry door with deadbolt and two fully glazed sidelites. The door size was 36" x 84" and the sidelites were 18" x 84". The glass remains consistent with 1/4" tempered glass with applied film as noted in the testing section.

5.0 Test #1: Semi-automatic rifle attack

5.1 Product Type: Safety and Security Film

5.2 Series/Model: 3M Ultra 600 (interior); 3M Safety S70 Exterior (exterior)

5.3 Film Attachment: Flexible-mechanical attachment

5.4 Area of Attack: Door

5.5 Conditioning Temperature: 21°C (70°F)

5.6 Result: A total of 1 minute, 21 seconds elapsed before the attacker was able to gain access through door entryway system

<u>Method of Attack</u>	<u>Number of Impacts/Shots</u>	<u>Time Elapsed (Seconds)</u>	<u>Note</u>
AR-15	4	0:00:07	1, 2
Upper Body Attack	19	0:00:13	3
Kicking / Lower Body Attack	19	0:00:27	
Upper Body Attack	3	0:00:05	
Kicking / Lower Body Attack	9	0:00:16	
Simulated rifle attack with 9-lb pipe	10	0:00:13	4
<u>Totals from above:</u>			
Gunshots	4	0:00:07	
Upper Body Attack	22	0:00:18	
Kicking / Lower Body Attack	28	0:00:43	
Simulated rifle attack	10	0:00:13	
Total:	64	0:01:21	

Note 1: The rifle utilized was a Rock River Arms AR-15 in .223 caliber. The ammunition utilized was ballistic tipped.

Note 2: Attempted pushing glazing after first shot.

Note 3: Upper body attack defined as a discrete attempt to push, pull, punch, rip or tear the glazing with hands, fists, or elbow.

Note 4: Simulated rifle attack consisted of direct impact with a nine pound galvanized steel pipe in the shape of a rifle.

6.0 Test #2: Semi-automatic rifle attack

6.1 Product Type: Safety and Security Film

6.2 Series/Model: 3M Ultra 800 (interior); 3M Safety S70 Exterior (exterior)

6.3 Film Attachment: 3M Impact Protection Profile flexible-mechanical attachment

6.4 Area of Attack: Sidelite

6.5 Conditioning Temperature: 21°C (70°F)

6.6 Result: A total of 38 seconds elapsed before the attacker was able to gain access through door entryway system

<u>Method of Attack</u>	<u>Number of Impacts/Shots</u>	<u>Time Elapsed (Seconds)</u>	<u>Note</u>
AR-15	4	0:00:07	1, 2
Upper body impacts	13	0:00:10	3
Kicking	8	0:00:10	
Upper body impacts	2	0:00:05	
Kicking	1	0:00:01	
Upper body impacts	2	0:00:05	4
<u>Totals from above:</u>			
Gunshots	4	0:00:07	
Upper Body Attack	17	0:00:20	
Kicking	9	0:00:11	
Total:	30	0:00:38	

Note 1: The rifle utilized was a Rock River Arms AR-15 in .223 caliber. The ammunition utilized was ballistic tipped.

Note 2: Includes 3 upper body attacks between shots.

Note 3: Upper body attack defined as a discrete attempt to push, pull, punch, rip or tear the glazing with hands, fists, or elbow.

Note 4: Attachment system failed (adhesion to film) before film was able to be penetrated.

7.0 Test #3: Baseball bat attack

7.1 Product Type: Safety and Security Film

7.2 Series/Model: 3M Ultra 600

7.3 Film Attachment: 3M Impact Protection Profile

7.4 Area of Attack: Sidelite

7.5 Conditioning Temperature: 21°C (70°F)

7.6 Result: A total of 12 seconds elapsed before the attacker was able to gain access through door entryway system

Method of Attack	Number of Impacts	Time Elapsed (Seconds)	Note
Baseball bat	15	0:00:12	

8.0 Test #4: Semi-automatic rifle attack

8.1 Product Type: Safety and Security Film

8.2 Series/Model: 3M Ultra 600

8.3 Film Attachment: Flexible-mechanical attachment

8.4 Area of Attack: Door

8.5 Conditioning Temperature: 21°C (70°F)

8.6 Result: A total of 18 seconds elapsed before the attacker was able to gain access through door entryway system

Method of Attack	Number of Impacts/Shots	Time Elapsed (Seconds)	Note
AR-15	4	0:00:06	1, 2
Upper body impacts	12	0:00:10	3
Kicking	3	0:00:06	4
Totals from above:			
Gunshots	4	0:00:06	
Upper Body Attack	12	0:00:10	
Kicking	3	0:00:06	
Total:	19	0:00:18	

Note 1: The rifle utilized was a Rock River Arms AR-15 in .223 caliber. The ammunition utilized was ballistic tipped.

Note 2: Includes 3 upper body attacks between shots.

Note 3: Upper body attack defined as a discrete attempt to push, pull, punch, rip or tear the glazing with hands, fists, or elbow.

Note 4: Attachment system failure (adhesion to film). Not enough time allowed for attachment to cure prior to testing.

9.0 Test #5: Baseball bat attack, NO FILM**9.1 Product Type:** None**9.2 Series/Model:** None (no film)**9.3 Film Attachment:** None**9.4 Area of Attack:** Sidelite**9.5 Conditioning Temperature:** 21°C (70°F)**9.6 Result:** A total of 5 seconds elapsed before the attacker was able to gain access through door entryway system

Method of Attack	Number of Impacts	Time Elapsed (Seconds)	Note
Baseball bat	4	0:00:05	1
Total:	4	0:00:05	

Note 1: First 2 strikes with bat did not break glass

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For ARCHITECTURAL TESTING, Inc.

Eric J. Schoenthaler
Project Manager

Daniel A. Johnson
Director – Regional Operations

EJS/jb

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Photographs (6 pages)

This report produced from controlled document template ATI 00498, issued 01/31/12.

Appendix A
Photographs

Photo No. 1



Test #1: Semi-automatic rifle attack, 3M Ultra 600 (interior) with Safety S70 Exterior (exterior).

Photo No. 2



Test #1: Semi-automatic rifle attack, after 45 seconds.

Photo No. 3



Test #1: Semi-automatic rifle attack, access gained 64 impacts and after 81 seconds.

Photo No. 4



Test #2: Semi-automatic rifle attack, 3M Ultra 600 (interior) with Safety S70 Exterior (exterior).

Photo No. 5



Test #2: Semi-automatic rifle attack, access gained after 30 impacts and 38 seconds.

Photo No. 6



Test #3: Bat attack, 3M Ultra 600.

Photo No. 7



Test #3: Bat attack, 3M Ultra 600, after several impacts,

Photo No. 8



Test #3: Bat attack, 3M Ultra 600, access gained after 15 impacts and 12 seconds.

Photo No. 9



Test #4: 3M Ultra 600, Semi-automatic rifle attack, after 4 shots.

Photo No. 10



Test #4: Semi-automatic rifle attack, access gained after 19 impacts and 18 seconds (film attachment failed – adhesion to film).

Photo No. 11



Test #5: Bat attack, NO FILM.

Photo No. 12



Test #5: Bat attack, NO FILM, access gained in 6 seconds.