BREAK and ENTRY PERFORMANCE TEST REPORT

Report No.: C7770.03-201-44

Rendered to:

3M COMPANY
St. Paul, Minnesota

PRODUCT TYPE: Safety and Security Window Film
SERIES/MODEL: 3M – 6 mil Microlayered Safety and Security Window Film

Test Dates: 04/26/13
Report Date: 07/17/13
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

3.2 Series/Model: 3M – 6 mil Microlayered Safety and Security Window Film

3.3 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.

3.4 Test Dates: 04/26/2013

3.5 Test Record Retention End Date: All test records for this report will be retained until April 26, 2017.

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

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

3.8 List of Official Observers:

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Neumann</td>
<td>3M Company</td>
</tr>
<tr>
<td>Billy Pettit</td>
<td>3M Company</td>
</tr>
<tr>
<td>Karl A. Lips-Eakins</td>
<td>Architectural Testing, Inc.</td>
</tr>
<tr>
<td>Eric J. Schoenthaler</td>
<td>Architectural Testing, Inc.</td>
</tr>
</tbody>
</table>

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: Handgun attack, no security film

5.1 Product Type: None

5.2 Series/Model: None

5.3 Film Attachment: No film was utilized

5.4 Area of Attack: Sidelite

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

5.6 Result: A total of 3 seconds elapsed before the attacker was able to gain access through door entryway system.

<table>
<thead>
<tr>
<th>Method of Attack</th>
<th>Number of Impacts/Shots</th>
<th>Time Elapsed (Seconds)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunshots</td>
<td>1</td>
<td>0:00:03</td>
<td>1</td>
</tr>
</tbody>
</table>

Note 1: The handgun utilized was a Glock Model 23 in .40 S&W. The ammunition utilized was full metal jacketed.
6.0 Test #2: Handgun attack, 3M 6-mil microlayered film

6.1 Product Type: Safety and Security Window Film

6.2 Series/Model: 3M - 6 mil Microlayered Safety and Security Window Film

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 58 seconds elapsed before the attacker was able to gain access through door entryway system.

<table>
<thead>
<tr>
<th>Method of Attack</th>
<th>Number of Impacts/Shots</th>
<th>Time Elapsed (Seconds)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunshots</td>
<td>4</td>
<td>0:00:05</td>
<td>1, 2</td>
</tr>
<tr>
<td>Kicking</td>
<td>9</td>
<td>0:00:13</td>
<td></td>
</tr>
<tr>
<td>Upper Body Attack</td>
<td>1</td>
<td>0:00:07</td>
<td>3</td>
</tr>
<tr>
<td>Kicking</td>
<td>4</td>
<td>0:00:04</td>
<td></td>
</tr>
<tr>
<td>Upper Body Attack</td>
<td>1</td>
<td>0:00:02</td>
<td>3</td>
</tr>
<tr>
<td>Kicking</td>
<td>2</td>
<td>0:00:04</td>
<td></td>
</tr>
<tr>
<td>Upper Body Attack</td>
<td>8</td>
<td>0:00:04</td>
<td>3</td>
</tr>
<tr>
<td>Kicking</td>
<td>8</td>
<td>0:00:19</td>
<td></td>
</tr>
</tbody>
</table>

**Totals from above:**

| Gunshots                  | 4                       | 0:00:05                | 1    |
| Upper Body Attacks        | 11                      | 0:00:13                | 3    |
| Kicking                   | 23                      | 0:00:40                |      |

**Total:** 38 0:00:58

*Note 1: The handgun utilized was a Glock Model 23 in .40 S&W. The ammunition utilized was full metal jacket.*

*Note 2: Attempted attack with upper body 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.*
7.0 Test #3: Semi-Automatic Rifle attack, 3M 6-mil microlayered film

7.1 Product Type: Safety and Security Film

7.2 Series/Model: 3M – 6 mil Microlayered Safety and Security Window Film

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

7.4 Area of Attack: Sidelite

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

7.6 Result: A total of 44 seconds elapsed before the attacker was able to gain access through door entryway system.

<table>
<thead>
<tr>
<th>Method of Attack</th>
<th>Number of Impacts/Shots</th>
<th>Time Elapsed (Seconds)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunshots</td>
<td>4</td>
<td>0:00:09</td>
<td>1, 2</td>
</tr>
<tr>
<td>Kicking</td>
<td>9</td>
<td>0:00:11</td>
<td></td>
</tr>
<tr>
<td>Upper Body Attack</td>
<td>4</td>
<td>0:00:03</td>
<td>3</td>
</tr>
<tr>
<td>Kicking</td>
<td>4</td>
<td>0:00:06</td>
<td></td>
</tr>
<tr>
<td>Upper Body Attack</td>
<td>8</td>
<td>0:00:08</td>
<td>3</td>
</tr>
<tr>
<td>Kicking</td>
<td>1</td>
<td>0:00:07</td>
<td></td>
</tr>
</tbody>
</table>

**Totals from above:**

<table>
<thead>
<tr>
<th>Method of Attack</th>
<th>Number of Impacts/Shots</th>
<th>Time Elapsed (Seconds)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunshots</td>
<td>4</td>
<td>0:00:09</td>
<td>1</td>
</tr>
<tr>
<td>Upper Body Attacks</td>
<td>12</td>
<td>0:00:11</td>
<td>3</td>
</tr>
<tr>
<td>Kicking</td>
<td>14</td>
<td>0:00:24</td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>30</strong></td>
<td><strong>0:00:44</strong></td>
<td></td>
</tr>
</tbody>
</table>

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

**Note 2:** Attempted attack with upper body 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.
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For ARCHITECTURAL TESTING, Inc.

Digitally Signed by: Eric Schoenthaler

Digitally Signed for: Daniel A. Johnson by Jan Brustad

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 (4 pages)
Appendix A

Photographs
Photo No. 1

Test #1: Handgun attack, no security film

Photo No. 2

Test #1: Handgun attack, no security film. After 1 gun shot.

www.archtest.com
Photo No. 3

Test #1: Handgun attack, no security film. Access after 3 seconds.

Photo No. 4

Test #2: Handgun attack, 3M 6-mil microlayered film.
Test #2: Handgun attack, 3M 6-mil microlayered film. After 4 gun shots.

Test #2: Handgun attack, 3M 6-mil microlayered film. Access after 4 gun shots, 11 upper body attacks, 23 kick attempts. Total time elapsed was 58 seconds.
Test #3: Semi-automatic rifle attack, 3M 6-mil microlayered film. After 4 gunshots.

Photo No. 7

Test #3: Semi-automatic rifle attack, 3M 6-mil microlayered film. Access after 4 gun shots, 12 upper body attacks, 14 kick attempts. Total time elapsed was 44 seconds.