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**Impact Testing of Organic coated Glass in
accordance with ANSI Z97.1-2009, CAN/CSGB-12.1-
M90 and CPSC 1201**

3M Renewable Energy
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Date: August 20, 2014
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Report Number: ESP016970P.2

3M SCOTCHSHIELD Ultra 800

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INTRODUCTION:

The following report presents the results of impact testing of organic coated glass in accordance with the ANSI Z97.1-2009, National Standard of Canada CAN/CGSP-12.1-M90 and CPSC 1201 standards. Testing was requested by Paul Neumann of 3M Renewable Energy. The samples were received on June 4, 2014 and testing was completed by Josh Garrison on June 23, 2014.

SUMMARY OF RESULTS:

3M Scotchshield Ultra 800 film when applied to nominal 1/4" annealed glass **Complies** with the safety glazing impact requirements of ANSI Z97.1-2009, CAN/CSGB-12.1-M90 and CPSC 1201.

3M Scotchshield Ultra 800 film when applied to nominal 1/8" annealed glass **Complies** with the safety glazing impact requirements of ANSI Z97.1-2009, CAN/CSGB-12.1-M90 and CPSC 1201.

TEST METHODS AND RESULTS:

Impact Test

Specimens were kept at a temperature of 70-80° F for a minimum of four hours preceding the test. Specimens were impacted alternating on the film side and the glass side, as noted in the tables in the following results section. Each specimen was struck once within ½ inch of center, with a shot bag constructed in accordance with the specifications referenced, swinging in a pendulum arc, from a drop height shown below.

3M Scotchshield Ultra 800 8 Mil – 1/4" Annealed Glass						
Sample Identification	Impact Side	Total Thickness Inches	Drop Height Inches	Weight of All Lost Particles (grams)	Weight of Largest Piece (grams)	Results/Size of Opening
#1	Film	0.229	48	408	17	Pass – No tears / No openings
#2	Glass	0.229	48	346	12	Pass – 14" vertical tear, Sphere would not pass through.
#3	Film	0.227	48	295	11	Pass – No tears / No openings
#4	Glass	0.230	48	171	4	Pass – No tears / No openings

EAR-CONTROLLED DATA

3M Scotchshield Ultra 800 8 Mil – 1/8" Annealed Glass						
Sample Identification	Impact Side	Total Thickness Inches	Drop Height Inches	Weight of All Lost Particles (grams)	Weight of Largest Piece (grams)	Results/Size of Opening
#1	Film	0.133	48	103	3	Pass – No tears / No openings
#2	Glass	0.132	48	170	12	Pass – No tears / No openings
#3	Film	0.133	48	134	1	Pass – No tears / No openings
#4	Glass	0.133	48	339	7	Pass – No tears / No openings

CALIBRATED TEST EQUIPMENT:

- PT-173-032 Starrett Micrometer
- PT-173-018 Sartorius Scale
- PT-177-012 Tape Measure

Calibration Due: 11/07/2014
 Calibration Due: 09/04/2014
 Calibration Due: 02/07/2018

DISPOSITION OF SAMPLE:

Samples were destroyed during testing and were disposed of immediately.

Prepared by:


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Reviewed by:


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