

# Cascade Coil Defense Systems

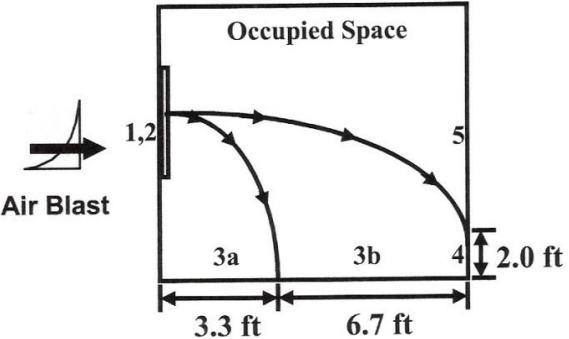
## GuardianCoil® Explosive Glass Hazard test by **BERC\***

Test Conducted: September 17, 2010

**Blast Test Summary:** Tests were conducted by **\* Baker Engineering and Risk Consultants, Inc.** located in San Antonio Texas of Cascade Coil Guardian Coil Systems (Project No. 01-03020-001-10). BERC testing consisted of a shock tube creating short duration loads with peak pressures from 4 to 10 psi.

### *ASTM Hazard Ratings and GSA Performance Conditions for ¼ in. annealed Glass Windows*

ASTM Hazard Rating	GSA Performance Conditions	GSA Description
Very Low Hazard	3B	Glazing cracks. Fragments enter space and load on floor no further than 10-feet from window.



Product Specs										Debris Impact Conditions <sup>7</sup>				
Test #	Mesh/ Weave	Mtl Type	Prot Level <sup>2</sup>	Msh Wt	Sq Ft	<sup>3</sup> O/ Hang	<sup>4</sup> S/ Hang	PSI <sup>5</sup>	PSI-MS <sup>6</sup>	<u>3a</u>	<u>3b</u>	<u>4</u>	<u>5</u>	<u>Comments</u>
										Glass Residue		# of Strikes		
1	3/32-	316	5	48	73	12.9"	6"	4.1	32	Maj of debris w/in 3-ft	3	3	Long Bottom Chain, Top Chain U <sup>8</sup>	
2	21g	SS <sup>1</sup>	3b	48	73	12.9"	6"	4.4	33	Maj of debris w/in 2-ft	0	0	Short Bottom Chain, Top Chain U	
3	3/16-	CS <sup>1</sup>	5	61	73	12.9"	6"	10.4	79	Catastrophic failure due to bracket mechanism				
4	19g		3b	61	73	12.9"	6"	6.2	41	Maj of debris w/in 2-ft	0	0	Top Chain C <sup>8</sup> w/ bolts at ends	
5	1/4-	304	3b	48	73	12.9"	6"	6.2	40	Debris Field – Very Limited	0	0	Top Chain C w/ bolts at ends	
6	19g	SS	5	48	73	12.9"	6"	9.3	63	Maj of debris w/in 2-ft	3	>3	Top Chain C w/ bolts at ends	

<sup>1</sup>SS= Stainless Steel; CS=Carbon Steel;

<sup>2</sup>Prot Level: Protection Level as determined by GSA Model

<sup>3</sup>O/Hang: the Distance from the widow to the floor

<sup>4</sup>S/Hank: the Distance the curtain Extends beyond the side of the window

<sup>5</sup>PSI: Pounds per Square Inch

<sup>6</sup>PSI-MS: Average Maximum Impulse – Pounds per square inch is the unit for measuring pressure (force per unit area)

<sup>7</sup>Impact Conditions: The Amount of glass residue on the floor and # of Strikes in the Witness Panel

<sup>8</sup>U=Unconnected; C=Connected