

## Standing Up to the Test

**GlassLock is the first company to conduct large-scale blast tests of retrofit safety film –to-glass products to the GSA/ISC Performance Criteria.**

In 1996 our initial test were conducted in accordance with the first draft of the GSA/ISC Glazing Hazard Criteria guideline. Before these tests, there was no empirical data, just anecdotal information based on the past use of FRF by both the Department of State and the British government. GlassLock's experience and performance data were instrumental in the development of the current GSA/ISC Glazing Hazard Rating Criteria.

### A Note on "Balanced Design"

Many people, including some engineers and architects, think of windows as just glass. Anti-terrorism/Force Protection and Blast windows must be thought of as SYSTEMS. Window systems. Generally consist of:

- Glazing (glass or polycarbonate)
- Gaskets and Seals
- Framing
- Anchorages
- Supporting Structures

A "Balanced Design" is essential for window systems so that an Anti-terrorism/Force Protection or Blast window is not attached to supporting structure that is significantly weaker than the glazing, framing and anchorage of the whole. This approach is critical to ensure that the glazing is

the weakest link in the design and that it achieves the required level of performance

when combined with framing, anchorage and supporting structure. The entire premise of "Balanced Design" is to equalize the capacities of the window systems with the rest of the structure (walls building frame, roof, etc.). In this way the windows will achieve the required

level of protection without premature failure or without being negatively affected by the other structural components that are significantly different in their behavior under load.



**"Balanced Design" is recommended by blast engineering experts.**

Since 1989, GlassLock has been providing designed solutions to clients nationwide and abroad

### Project Performance Worldwide

#### Federal Government:

- Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)
- Department of State (DOS)
- Department of Housing and Urban Development
- DOD—All components
- Drug Enforcement Agency (DEA)
- Environmental Protection Agency (EPA)
- Federal Bureau of Investigation (FBI)
- Food and Drug Administration (FDA)
- General Services Administration (GSA)
- Inter-American Development Bank (IADB) Washington DC
- Internal Revenue Service (IRS)
- National Gallery of Art, Washington DC
- National Park Service
- Office of Management and Budget
- Smithsonian Museums, Washington DC
- United States Court House, Washington DC

#### International:

- American Consulate General, Florence
- American Embassy, Rome
- American Embassy, Stockholm
- American Embassy, Vatican City
- AmerikaHaus, Cologne
- United Kingdom Home Office
- United Kingdom Ministry of Defense

#### Major Corporate/Commercial:

- Apple Computer, Inc.
- AOL
- BAE
- Hewlett-Packard
- IBM
- State of California
- State of Hawaii

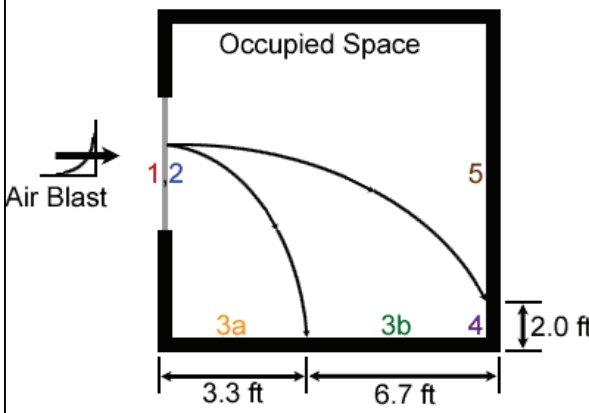
*GlassLock has the technical expertise and project experience to provide custom protective glazing options to its customers seeking to improve physical security of existing window systems.*

**Protecting the Homeland**



**The Situation:** The National Park Service at the Mount Rushmore National Monument was receiving threats from eco-terrorists on their newly constructed visitor's center and museum. The building had more than 35,000 square feet cladding that provided an expansive vista of the Monument.

**ISC/GSA Blast Criteria Threat Level Matrix**



GlassLock is dedicated to continual investment in research, development, and live testing of its products. They have passed the rigorous ISC/GSA Security Criteria Blast Tests and can be tailored to meet required

**The Solution:** Working with the National Park Service security department and the building architects, GlassLock fabricated and installed an attached Glass Fragment Retention System that secured the building and meeting the safety needs of its occupants.

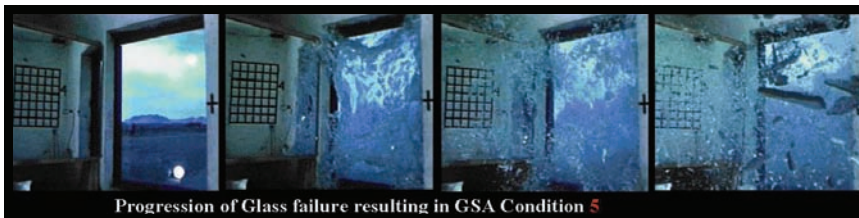
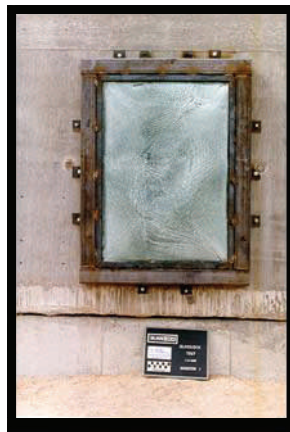
**The Situation:** After 9/11 the Smithsonian institute needed to significantly upgrade the security of its many buildings that line the National Mall in Washington, DC. These major public venues host millions of visitors, house priceless national treasures, and are architectural monuments in and of themselves.



**The Solution:** GlassLock worked closely with architects, facility engineers, blast consultants and curators to custom design and install a unique protective glazing system solution for each of the Smithsonian buildings. This work was accomplished with minimal impact on public access to the museum collections.

**Blast Tests**

Unprotected (no FRF) and Protected (GlassLock Anchored FRF) Annealed glass exposed to 4psi, 28-30psi msec blast pressures.



Progression of Glass failure resulting in GSA Condition 5