Blast-Resistant Window Systems
By Wojan in collaboration with Physical Security

Designed to meet
Department of Defense (DoD)
Unified Facilities Criteria (UFC)
at conventional standoff

- Aluminum windows for punched openings: Single Hung, Fixed, Project-out Awning or Casement
- Meets Anti-Terrorism Force Protection (ATFP) - UFC 4-010-01 and 02 at Charge Weight I & II
- Thousands of DEFCON windows installed or in production for BRAC construction projects
- Cost and design advantages over other products
- Fully factory assembled windows, shop glazed - no field glass installation - minimal lead times
- Comparatively easy and cost-effective to install
- Minimal anchorage required, similar to commercial window installation
- No embeds required in precast
- One of the strongest bundles of warranty coverage in the industry (details - see supporting document)
- Engineering and technical support for identification of anchorage substrates, variations in sizes and anchor conditions - available
- Certified installers - available
- Blast test certifications / complete calculations by Professional Engineer - available
- Shop Drawings (elevation / sections) - available

Projects / Accomplishments (partial list):
- AMC/USACA HQ - Redstone Arsenal
- Anacostia Federal Building - Bolling AFB
- Battalion Headquarters - Ft. Benning
- D.O.T.S. Facility - Ft. Benning
- Defense Info Sys Agency HQ - Ft. Meade
- Washington D.C. Naval Yard
- Quantico Marine Corps Base
- 101st Airborne GTF Complex - Ft. Campbell
- COF Barracks - Pearson, GA
- Training Brigade Complex - Ft. Benning
- UEPH Barracks - Ft. Benning

Pentagon renovation window replacement by Physical Security had been recently completed when the 9/11 attacks occurred

DEFCON II fixed windows for AMC/USACA Headquarters - Redstone Arsenal, Huntsville, Alabama

Made in the U.S.A.
DEFCON systems utilize a receptor to establish exact engagement of the window into receiver.

Pre-bid Facade Design - Cost-Effective Product Selection
At the time of pre-bid facade design, product selection decisions can have a huge impact on overall project expense - due to factors such as precast cost, embeds; and in the case of masonry facades, expensive steel supports for the windows.

Compared to DEFCON factory-made windows - blast-resistant storefront product stick-built into punched openings often creates schedule issues (slow to install) and other added expense for general contractors. Field glazing of other blast-resistant systems can also create significant quality control issues when they require field silicone application.

You’ll find the DEFCON system provides superior capabilities and resources. Otherwise, the extra step or burden of hiring a third-party blast engineer often falls to the general contractor - in order to analyze the project unit size, and calculate the level of load to be accommodated.

Anchorage, Studs and Substrate
The design of these glazing units and the anchorage specified as a part of their performance are intended to be attached generally and variously at the head, jambs and sill; into properly designed and constructed 6-inch deep, 12-gauge studs with a 33 ksi yield strength (minimum requirement).

Depending on window size and configuration, these studs may be required to be designed back-to-back or “nested”. Therefore, precast panels provide an adequate substrate for anchorage. Support substrate capacity and design should be verified by the structural engineer of record.

DEFCON Finishes:
- Electrostatically-applied baked-on polyester standard colors (AAMA 2603): Bronze, White. Hung models also available in Sand Beige or Hartford Green.
- Available high-performance fluoropolymer colors (AAMA 2605): White (70% Kynar®), Bronze (70% Kynar®).
- Available anodic coatings (AAMA 611): Clear Anodized, Bronze Anodized.
- Custom colors available subject to minimum quantity requirements.

(Kynar® is a registered trademark of Arkema Inc.)
Summary - Blast Window Attributes & Protection Level

<table>
<thead>
<tr>
<th>DoD / UFC</th>
<th>(GSA) ISC Security Design Criteria - Blast Protection Levels / Window Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Protection</td>
<td>Performance Condition</td>
</tr>
<tr>
<td>High</td>
<td>No Hazard</td>
</tr>
<tr>
<td>Medium</td>
<td>Minimal</td>
</tr>
<tr>
<td>Low</td>
<td>Very Low</td>
</tr>
<tr>
<td>Low</td>
<td>Very Low</td>
</tr>
<tr>
<td>Very Low</td>
<td>Low</td>
</tr>
<tr>
<td>Below Anti-Terrorism (AT) Standards</td>
<td>High</td>
</tr>
</tbody>
</table>

**Wojan M-950B - Additional Features**

- Installation accessories include nailing fin, face flange, and caulk backer
- U-Values not typical of most other AW-hung product
- Ease of operation - Class I balance system standard, optional Class V
- Ergonomic-design lift rails located at both bottom and top of operable sash
- Grade 40 forced-entry resistance
- Sloped sill
- Standard finishes include bronze or white Kynar® (AAMA 2605), and clear or bronze anodized (AAMA 611) - custom colors with minimum order

*(Kynar® is a registered trademark of Arkema Inc.)*

Install of M-950B only requires interior application of blast trim on two sides. Trim base is pre-applied.

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**Department of Defense (DoD) Unified Facilities Criteria (UFC) & GSA / ISC Security Design Criteria**

<table>
<thead>
<tr>
<th>Model</th>
<th>Window Type</th>
<th>Receptor System</th>
<th>AAMA Performance Rating</th>
<th>System Depth</th>
<th>Thermal Barrier</th>
<th>UFC 4-010-01 Level of Protection</th>
<th>UFC 4-010-01 Glazing Hazard Rating</th>
<th>Meets Anti-Terrorism Force Protection (ATFP) *</th>
<th>Meets UFC 4-010-01 and 02 *</th>
<th>ISC Glazing Performance Condition</th>
<th>ISC Protection Level</th>
<th>ISC Hazard Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-950B</td>
<td>Single-Hung</td>
<td>No</td>
<td>AW50</td>
<td>4 ¾”</td>
<td>Yes</td>
<td>Medium</td>
<td>Minimal</td>
<td>Yes</td>
<td>Yes</td>
<td>3a</td>
<td>High</td>
<td>Very Low</td>
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<tr>
<td>M-950B</td>
<td>Fixed</td>
<td>No</td>
<td>AW80</td>
<td>4 ½”</td>
<td>Yes</td>
<td>Medium</td>
<td>Minimal</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Very High</td>
<td>None</td>
</tr>
<tr>
<td>DEFCON I</td>
<td>Single-Hung</td>
<td>Yes</td>
<td>CW50</td>
<td>3 ¾”</td>
<td>Yes</td>
<td>Medium</td>
<td>Minimal</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Very High</td>
<td>None</td>
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<tr>
<td>DEFCON II</td>
<td>Fixed</td>
<td>Yes</td>
<td>AW70</td>
<td>3 ¾”</td>
<td>Yes</td>
<td>Medium</td>
<td>Minimal</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Very High</td>
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<tr>
<td>DEFCON III</td>
<td>Project-out Awning</td>
<td>Yes</td>
<td>AW70</td>
<td>3 ¾”</td>
<td>Yes</td>
<td>Medium</td>
<td>Minimal</td>
<td>Yes</td>
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<td>2</td>
<td>Very High</td>
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<tr>
<td>DEFCON V</td>
<td>Project-out Casement</td>
<td>Yes</td>
<td>HC65</td>
<td>3 ¼”</td>
<td>Yes</td>
<td>Medium</td>
<td>Minimal</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Very High</td>
<td>None</td>
</tr>
</tbody>
</table>

* Provide protection as mandated by ATFP criteria for Explosive Weight I & II at conventional construction distances
* All glazing has met the listed GSA / ISC performance condition - but frames and anchorage do not meet “glass fail first” criteria.
AAMA Ratings - Air / Water / Structural / Thermal

| Model       | Window Type  | AMMA Rating | Test Size (W x H) | Air Infiltration (cfm/sq ft) | Water Resistance (psf) | Design Pressure (psf) | Deflection (psf) | Structural (psf) | U-Value  
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</tr>
</thead>
<tbody>
<tr>
<td>DEFCON I</td>
<td>Single Hung</td>
<td>CW50</td>
<td>52&quot; x 81&quot;</td>
<td>.20</td>
<td>7.5</td>
<td>50</td>
<td>50</td>
<td>75</td>
<td>.43 ♦ or .48 ♦ or .69 ♦</td>
</tr>
</tbody>
</table>

♥ U-Value comparisons - example data represents three typical glass package options (see our website for the latest updates).

All simulation values based on ¾" IGU with ⅛" lites. Simulated window sizes based on NFRC 100.

♦ With optional high-performance glass package.

♣ Air-filled IGU with Low-E over clear glass, ½" aluminum box spacer.

■ Air-filled IGU with clear over clear glass, ½" aluminum box spacer.

♥ U-Value comparisons - example data represents four typical glass package options (see our website for the latest updates).

All simulation values based on 1" IGU with ⅛" lites. Simulated window sizes based on NFRC 100, at AAMA 1503 sizes.

◆ With optional high-performance “plus” glass package.

♦ With optional high-performance glass package.

♣ Air-filled IGU with Low-E over clear glass, ¾" aluminum box spacer.

■ Air-filled IGU with clear over clear glass, ¾" aluminum box spacer.

* The ’05 fenestration standard utilized five performance classes - R, LC, C, HC and AW. NAFS-08 utilizes four such classes - R, LC, CW and AW.