

CASCADE Blast Protection



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HIGHLY ENGINEERED FOR DYNAMIC BLAST PROTECTION

Guardian Grade Fabricoil is a highly engineered, innovative system that provides Dynamic Blast Protection for high-threat facilities: government buildings, airports, embassies, palaces, hotels, and other critical or vulnerable infrastructure.

Guardian Grade Fabricoil material flexes in a predictive and repeatable way to absorb the forces of the blast, rather than transmitting them to the building structure or its occupants. No other blast protection materials offer this dynamic characteristic. Its interwoven coils are both flexible and resilient. It forms, in effect, a three-dimensional spring that spreads forces to adjacent areas like ripples in a pond. By dynamically absorbing the energy of a blast, it harmlessly diverts energy and debris away from personnel and structural building components.

What is the material?

- Steel & Stainless Steel Coiled Wire Fabric
- Flexible Metal Mesh Safety Guard Systems

Product Applications

- Catchment Systems for Punched Window and Curtain Wall Retrofits
- Unreinforced Masonry Wall Reinforcement Retrofits
- Blast Containment Structures
- Testing Facilities - Blast, High Pressure, Hydraulic
- Storm Driven Missile Protection for Windows and Walls
- Substation/Transformer Blast Containment

KEY FEATURES

- Prevents human injuries caused by blast-driven and storm-driven debris
- Covert - does not look like a security measure
- Allows for situational awareness and enhances interior building spaces
- High Strength - Superior strength and corrosion resistance
- Energy Absorption - Dissipates a projectile's kinetic energy by enveloping airborne debris
- Fireproof - Will not burn and does not absorb oil or other flammable liquids
- Versatility - Systems can easily be moved to allow access for maintenance and cleaning
- Customizable - Engineered systems to accommodate unique performance requirements and scale
- Affordable - Lower retrofit cost than blast windows or catchment cables
- Performs in conjunction with security film
- Suitable for new construction, retrofits, and historic renovations
- Great for swing space and temporary office retrofits
- Protective safety barriers (storm debris, industrial containment)
- Internal security barriers
- Vandal resistant
- Significant energy savings and ROI
- Attractive texture and finishes
- Protects from flying debris, glass shards, window frames
- Cannot be cut by flying glass, debris, or by employees
- Long lifecycle and durability
- Contributes to employee well-being and morale
- 25-year limited lifetime warranty

GUARDIANCOIL VALIDATION SHOCK TUBE TESTS – RESULTS ANALYSIS UNIVERSITY OF OTTAWA, JUNE 2015

Analysis of University of Ottawa Shock Tube Test for window blast (Fig. 1) closely matches results of Finite Element Analysis simulation (Fig. 2), modeling the behavior of GuardianCoil for peak displacement and other critical performance factors. Results applied to predictive modeling and analysis for retrofit building installation (Fig. 3) illustrate the ability to withstand an exterior truck bomb explosion.



Figure 1: Shock Tube Test Setup

Figure 2: FEA Simulation

Figure 3: Retrofit Installation Performance

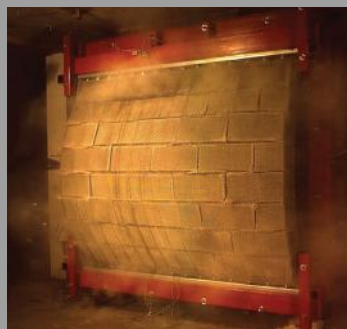
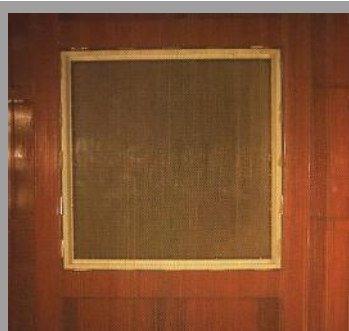
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PROTECTING PEOPLE AND PROPERTY

Guardian Grade Fabricoil provides a range of highly desirable properties to both security consultants and constructions specification writers. Guardian Grade Fabricoil has the added benefit of being an attractive architectural component. It enhances the atmosphere

of interior building spaces, and thus the well-being of its occupants. No longer are the valuable and highly-trained personnel who are being protected subject to fortress-like environments. Guardian Grade Fabricoil can also be used to partition interior spaces, provide interior security and protection in a covert, non-obvious manner. This provides protection from interior blasts in less secure environments, such as airports.



DYNAMIC INNOVATION

Cascade Architectural is bringing dynamic innovation to a market that has not recently seen new debris or blast mitigation technologies. The GuardianCoil material can be described in terms of a trampoline, which flexes to absorb the energy from the athlete, and then rebounds to its original shape and position. In a similar manner, GuardianCoil flexes to absorb energy and then returns to its original state. It can do this over and over.

COST EFFECTIVE

A retrofit installation of Guardian Grade Fabricoil to protect a glass facade, with or without daylight film application, typically costs less than half that of a full window replacement.

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WHO IS CASCADE ARCHITECTURAL?

Cascade Architectural is committed to protecting lives and property from man-made and natural catastrophes through its state-of-the-art GuardianCoil® Dynamic Blast Protection and Debris Mitigation Technologies. GuardianCoil Safety Barriers protect personnel, contain debris, and comply with Occupational Safety and Health Administration's (OSHA) requirements to prevent injuries from projectiles.

Cascade Architectural provides solutions for a variety of applications, from safety guards and testing facility blast containment to protection against storm-driven debris and terrorist incidents, in permanent or temporary installations. It is flexible, lightweight, and easily installed. It can be repurposed and redeployed. It is an investment with an indefinite lifetime and is also 100% recyclable with energy saving benefits.

Cascade Architectural is a subsidiary of Cascade Coil Drapery, with a heritage in the engineered metal products business dating back to 1939.

ACCREDITATIONS

- GSA Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings
- Rating: 3b
- ASTM F1642 Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings
- Low Hazard Level
- ASTM F2912 Standard Specification for Glazing and Glazing Systems Subject to Airblast Loadings
- ASTM E1300-04 Standard Practice for Determining Load Resistance of Glass in Buildings
- ISO 16932:2016 Glass in Building - Destructive - Windstorm-Resistant Security Glazing - Test and Classification
- ISO 16936-1:2005: Glass in Building - Forced-Entry Security Glazing
- ISO 16933:2007 Glass in Building - Explosion Resistant Security Glazing - Test and Classification for Arena Air Blast Loading
- Rated ISO EXV25
- ISO 16934:2007 Glass in Building - Explosion Resistant Security Glazing - Test and Classification by Shock Tube Loading
- AAMA 510-06 Voluntary Guide specification for Blast Hazard Mitigation for Fenestration Systems
- UFC 4-010-01 DOD Minimum Antiterrorism Standards for Buildings
- UFGS-08 87 23.13: Whole Building Design Guide
- Department of Homeland Security (DHS) SAFETY Act 2017 both designation and certification.



MAT-DS-0029 - MAY 2019