

GUARDIAN COIL Blast Mitigation Drapery



GuardianCoil® is custom manufactured in a variety of wire types, gauges, and weave sizes. Through the proper selection of the weave and wire gauge, a solution can be tailored to your specific threat level.

Our manufacturing technique allows the finished product to be flexible in one direction, giving you more design options than existing solutions such as solid metal barriers.

Protection • Aesthetics • Visibility



CASCADE COIL
DEFENSE SYSTEMS, INC.

Affiliated with Cascade Coil Drapery, Inc.



Cascade Coil Drapery offers its products under two GSA SIN groups:

- **56316** Blast Mitigation
- **56399** Architectural Metal Drapery

Cascade Coil's contract number is **GS-07F-0614W**

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WHY IS GUARDIANCOIL® NEEDED?

The risk of injury resulting from explosions extends to those inside buildings due to airborne debris as well as shock waves caused by the explosions. Both the debris and shock waves can cause windows and doors to implode spraying glass and additional debris inward toward the interior of the building. Those people positioned near an opening when the blast occurs can be significantly injured by the flying debris.

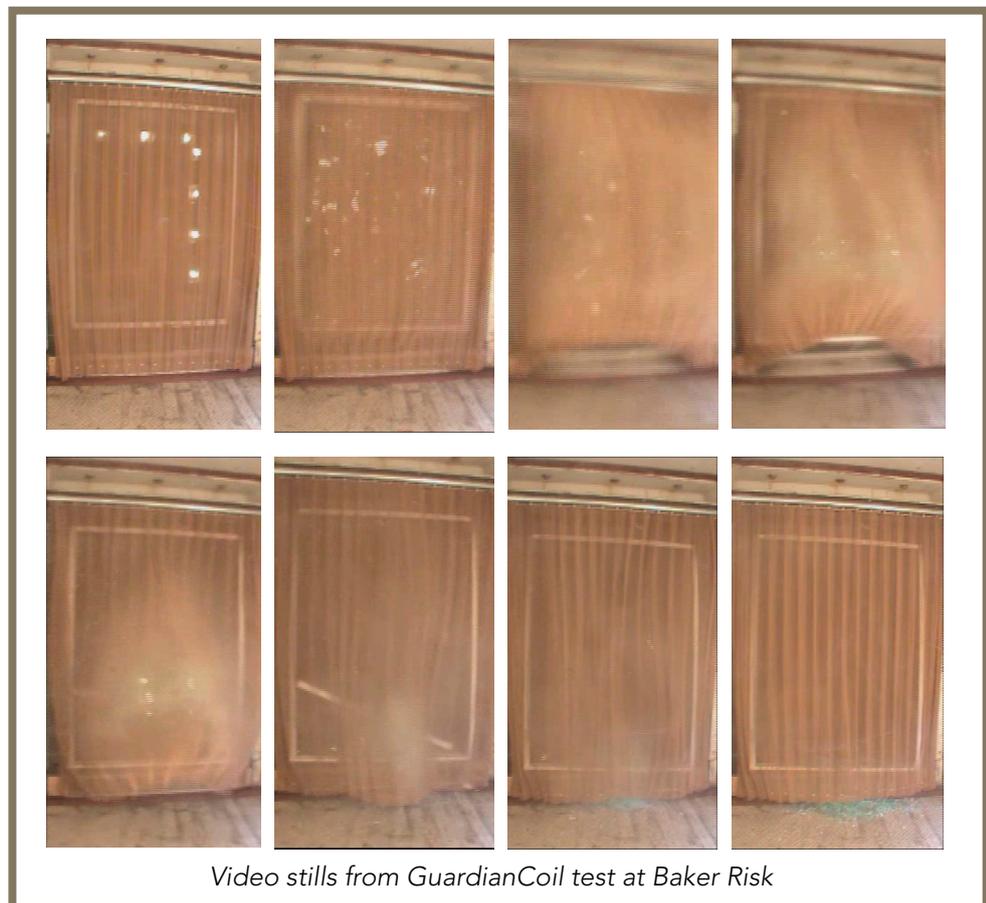
Conventional approaches to mitigating injuries from blast damage include adding exterior or interior barriers to cover window and door openings to shield against airborne debris and shock waves. The barriers may be constructed in a variety of manners from different materials but are typically rigid and constructed in a manner to shield as much of the opening from exposure to the explosion. The barriers are often unsightly and require extensive retrofitting or additional equipment to be mounted in place. Additionally, the resulting construction effectively blocks natural light and prevents those inside from seeing through the opening. Because the barrier blocks both light and viewing, the barriers are often moved out of place making them useless at the time of a blast event.

HOW DOES GUARDIANCOIL® WORK?

Constructed to prevent loss of life & serious injury while being esthetically pleasing, GuardianCoil uses patent pending technology that includes a metal mesh drapery positioned to catch debris in the event of an explosion that causes a window to implode. The mesh drapery allows natural light to pass and allows visibility through the window from the interior. Protection is provided by the mesh drapery as it stretches to absorb impact energy and encapsulates airborne debris while also allowing blast pressure to vent.



As fullness increases, more protection is offered. GuardianCoil requires a minimum of 100% fullness for optimum blast protection or projectile stopping power.



Video stills from GuardianCoil test at Baker Risk

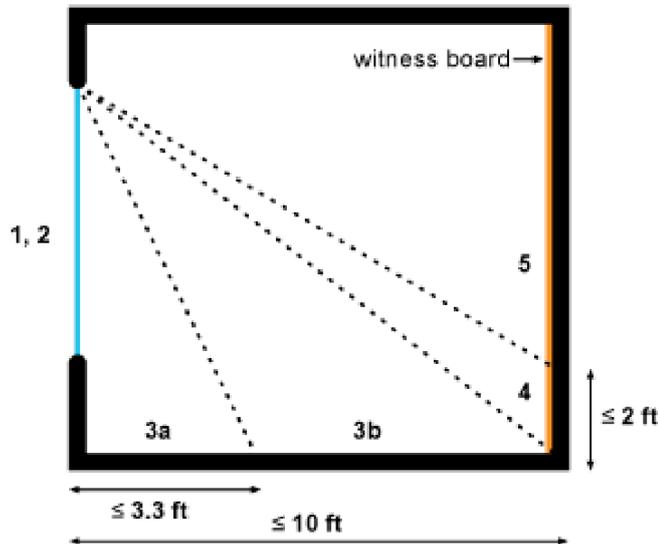
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TESTING

The GSA guideline for glazing system performance, the GSATS01-2003, outlines approved methods for shock tube testing, arena testing and test modeling with software. This illustration shows a cross section of a test structure defining the protection levels for windows. GuardianCoil underwent testing in an arena live blast scenario as well as multiple shock tube tests.

Keeping in mind that GuardianCoil is not designed to keep the window from failing (levels 1 & 2), GuardianCoil passed the GSA test at a 3b performance condition which is defined as "Glazing cracks. Fragments enter space and land on floor no further than 10 ft. from the window." At this performance condition the Protection Level is described as High and the Hazard Level as Low. GuardianCoil also passed under UFC 4-010-01 standards (conditions significantly tougher than required under GSA test standards). Described as "Applicable Weights 1 & 2 at Conventional Construction Standoff Distance (6 psi peak pressure, 40 psi-ms impulse length)."



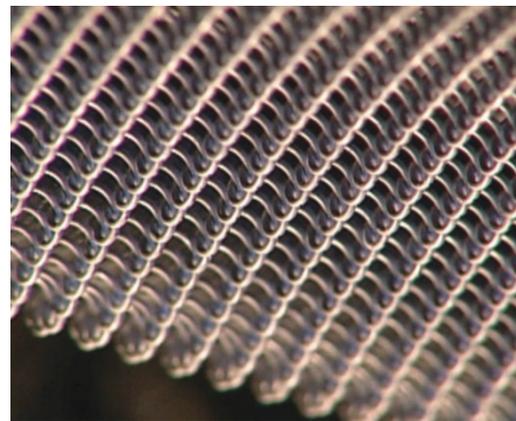
WHAT GUARDIANCOIL® MATERIALS ARE AVAILABLE?

GuardianCoil is available in all standard drapery sizes as well as custom sizes. There is no limit on the width and heights can exceed 50 ft. Custom manufacturing facilitates protection for any size window opening including ceiling to floor drapes for complete window structure protection. Since there are no drapery size limitations, GuardianCoil can also be used as a

protective divider to protect interior areas within a building from the effect of potential internal explosive blasts.

GuardianCoil is available in steel and stainless steel, and in weave sizes from 1/4" to 3/32".

As all GuardianCoil products meet and exceed the GSA testing standard, the weave size is selected based on the aesthetic look desired. GuardianCoil meets several architectural requirements including low maintenance, favorable strength to weight ratio, resistance to environmental exposures, and simple installation. The drapery is also available in a variety of finishes for an aesthetic integration into the existing space.



FINISHES

In addition to natural finishes we offer a wide array of finishes to meet your design requirements. Designer metallic powder finishes may be special ordered. Durable acrylic lacquer coatings are available in a wide range of custom colors that can be matched to color chips. Nylon coated galvanized steel is available in any color using the Pantone Color System.

Metaltone Finishes	
Satin Gold	Satin Bronze
Satin Brass	Grape Bronze
Satin Black	Satin Copper
Steel Gray	Antique Copper
Alumabrite	Antique Bronze
Brilliant Aluminum	Gunmetal Black



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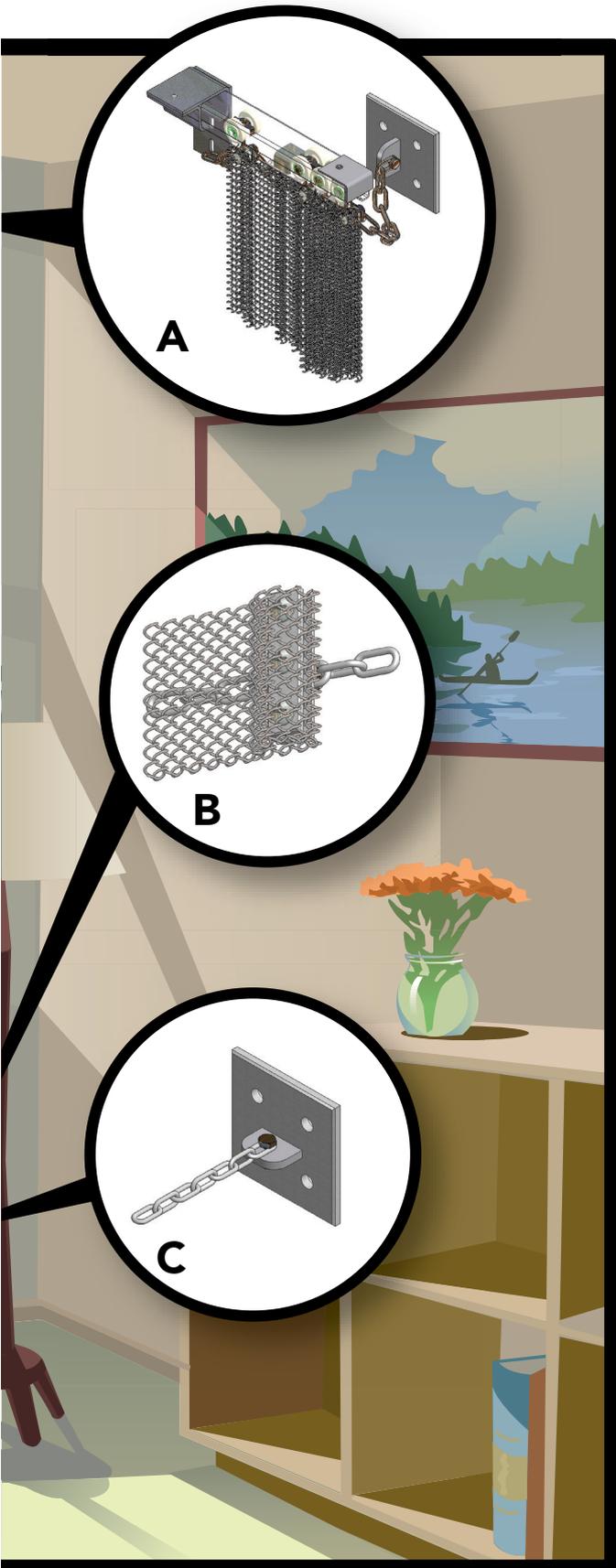
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WHAT ARE THE INSTALLATION REQUIREMENTS?

As with standard window drapes GuardianCoil is easy to add to an existing window or other building opening. The patent pending GuardianCoil rail support system and drapery installation is critical to the viability of the system. The drapery is only as effective as the rail support system. Because the installation environment changes from site to site, the installation specifications for each project are closely coordinated with the customer to maximize the adequacy for a particular threat level.

- A. Rail support system with top restraining chain and wall bracket.
- B. Restraining chain to mesh mounting point and plate.
- C. Lower restraining chain wall bracket.
- D. Lower restraining chain to mesh attachment.

Note: Restraining chain is mounted behind the mesh and finished to match.

Key Features

Superior Strength and Energy Absorption

- GuardianCoil effectively absorbs high-powered energy impacts by collapsing around the projectile, reducing the chance of injury or damage to people and property. It will also catch flying particles and parts from working machinery and testing equipment.

Difficult to Penetrate

- Round weave GuardianCoil offers superior resistance to penetration by projectiles. To penetrate, the item must first flatten the wire mesh in all directions at the point of impact. In doing this the projectile loses energy.

Design Advantages and Installation Savings

- Custom manufacturing of GuardianCoil facilitates design advantages in determining solutions to explosion threat situations and offers installation cost savings. The relative low weight of GuardianCoil minimizes structural support requirements.

Fireproof and Virtually Maintenance Free

- Oil, grease and other liquids will not be absorbed by the fireproof GuardianCoil. The material is very durable. If damaged, sections can be easily removed and replacement sections spliced in at the installation site.

Protects Without Diminishing Work Environment

- The appealing aesthetic and variety of finish options add a pleasing architectural element to a work environment. The flow-through design of GuardianCoil allows light into the work area and does not interfere with ventilation when used as an interior divider.

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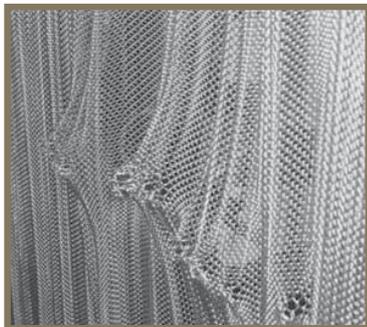
WHO MANUFACTURES GUARDIANCOIL ?

GuardianCoil is manufactured by Cascade Coil Drapery, Inc.; a company affiliated with Cascade Coil Defense Systems, Inc. Located in Tualatin, Oregon, the 32,000 Sq. Ft. production facility is capable of producing 10 million square feet of drapery annually. The company has been manufacturing commercial metal wire drapes/curtains for nearly 25 years.

The commercial line includes wire fabrics specified by architects and designers for a multitude of applications including; space division, window treatment, wall covering, lighting effect, retail display, building cladding, semi-security, industrial safety, and blast mitigation.

The company maintains in-house design, engineering, and manufacturing capabilities. Installation services are provided using a network of certified installers. All orders are processed on an expedited basis. The company maintains close coordination with customers from initial order through the quality installation process.

GuardianCoil®
after stopping
1.2" x 2.5" test slugs
(not bullets) fired at
close range at 170 fps
during tests by a
leading aircraft
manufacturer.



MEASUREMENTS

Cascade Coil Defense Systems quotations are based upon dimensions given by the client. While drawings and architectural or engineering plans may be helpful in interpreting the application, it is the responsibility of the customer to provide accurate measurements.

The term "coil length" refers to the length of the wire coil. Under most circumstances, the coil length is also the vertical measurement. In applications such as a banner where the material is "turned on its side" the coil length may be the horizontal measurement. For further clarification contact Cascade Coil Defense Systems.

The most common measuring error involves the height of opening. It is important that this measurement is accurate. Care must be taken to allow for floors or carpeting that may not be installed at the time measurements are taken. Deductions for track and floor allowance will be made by Cascade Coil Defense Systems prior to production. If the mesh is too long, it will need to be returned to Cascade Coil Defense Systems where it can be properly cut to size. There is no method for adding length to mesh. If it is too short, the order will need to be rewoven. Square footage is computed from opening measurements plus fullness rounded up to even square feet.

Fullness added recommendations: Acceptable Range 100%-200%

Note: Fullness is the percentage of extra mesh added to create the desired pleating effect. The minimum order is 50 sq. ft. Orders below minimum will be priced at 50 sq. ft. or a set-up fee will be added (whichever is less). Additional cutting and processing surcharges will be assessed for panels under 5 ft. or over 20 ft. in height.

SAMPLES

Individual samples of each weave are available upon request. Large and special finish samples may be ordered at the standard square foot price plus applicable set-up charges.

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PRICING

Quotations are valid for 30 days unless otherwise stated in writing. Prices are subject to change without notice. Cascade Coil Defense Systems prices do not include sales, user, excise or other taxes. Cascade Coil Defense Systems reserves the right to revoke a quotation at any time, and for any reason.

Factors that affect pricing:

- Weave type (weave size & wire gauge type)
- Order volume
- Exceptionally short or tall heights (under 5' or over 20')
- Urgency of order
- Installation location
- Freight costs
- Installation site and or characteristics

SHIPPING

Estimated ship dates in proposals are based on historic averages and are not guaranteed. The customer may request an approximate ship date upon placement of order. This date will be based on wire availability and the current weaving schedule.

In the event that the wire mesh is required for an opening or event, every effort will be made to meet a deadline. Because of unforeseen circumstances in production and shipping, Cascade Coil Defense Systems cannot guarantee an exact shipping date. Therefore, it is important that an order be placed in sufficient time to allow for such variables.

For urgent requirements, Cascade Coil Defense Systems may be able to guarantee a rapid delivery date. A rush surcharge may be assessed.

GSA



Cascade Coil Drapery offers its products under two GSA SIN groups:

- 56316 Blast Mitigation
- 56399 Architectural Metal Drapery

Cascade Coil's contract number is GS-07F-0614W

LIMITED WARRANTY POLICY

All necessary replacement of parts and adjustments not caused by accident or misuse shall be made at the vendor's expense when notified within 30 days after receipt of product. All products are warranted for a period of two years from the date of receipt. During warranty period, all defects not caused by attack, accident or misuse through fault or negligence shall be adjusted or replaced at the vendor's expense. Cascade Coil Drapery, Inc. (CCD) and Cascade Coil Defense Systems, Inc. (CCDS) shall not be liable for incidental or consequential damages including, but not limited to, loss of use of the product or any associated product, cost of substituted products, services, downtime costs, or claims of customers of the purchaser for such damages. Federal Government regulations may not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. Disclaimer: In as much as CCD and CCDS have no control over the use to which others may put this material; it does not guarantee that the same results, as those described herein will be obtained. Nor does CCD or CCDS guarantee the effectiveness or safety of any possible or suggested design as illustrated herein by any photograph, technical drawing, etc. Customers should conduct their own tests to determine product suitability for their intended use.



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MATERIALS HANDLING

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MAT-DS-0032 - MAY 2019

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