

C O M M E R C I A L  
WINDOW SHIELD

S A M P L E

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## SAMPLE OF SPECIFICATION/STATEMENT OF WORK DOCUMENT

**PROJECT OVERVIEW:** Installation of Fragment Retention Film to the exterior facing vision glass at (list building location or address).

### Scope

The project consists of furnishing and installing fragment retention film to the interior surface of the exterior facing vision glass of the building located at (list building address). This work is being done to protect the occupants of the building from flying glass shards in the event of an explosion or other event that would shatter the glass. Areas to be covered include the building entrance and all exterior facing vision glass.

### Performance

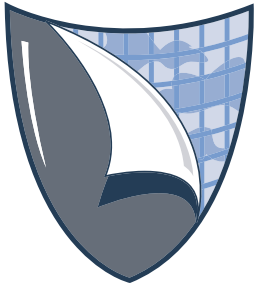
The film proposed shall have met a minimum of a level "3a" protection as per the General Service Administration (GSA) security criteria. Products are to have been tested using the Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings. Bidders are required to produce test results showing that they tested with a certified and approved United States testing facility recognized by the GSA. Only test results that follow the precise GSA requirements will be allowed. Any testing that was done that modified any of the variables will not be accepted. Passing test results must be based on a blast load of 4 psi and 28 psi-msec.

### Installation

The film is to be installed on the interior surface of the glass. Depending on the height of the building and the blast modeling analysis, it is possible that there will be a combination of "daylight" and "film attachment" installation required to meet the blast requirements throughout the building. Where it is determined that only a "daylight" installation is required, the installation shall be done in accordance with the International Window Film Association (IWFA) visual quality standards. Work to occur during normal working hours.

### Computer Modeling

Computer modeling is to be done to determine the proper product and installation method to be used on the building. The customer has determined that there could be a potential blast that could generate in excess of 4 psi on the lower floors of the building. Approved blast simulation modeling software such as WINGARD (Window Glazing Analysis Response and Design) is to be used to determine what film thickness and installation method should be used to accommodate the higher pressures on the lower floors. This modeling will also dictate what film type and installation should be used throughout the remainder of the building. Actual open air blast test results from a recognized testing facility and company as stated in "Performance" above is also required and are to be submitted to be considered for this project.



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## SAMPLE OF SPECIFICATION/STATEMENT OF WORK DOCUMENT (CONTINUED)

### **Products/Materials**

Fragment retention film is to be comparable to Armor Coat 8-mil clear film as manufactured by Bekaert Specialty Films. Fragment retention film shall be the standard product of a manufacturer regularly engaged in the manufacture of such products and shall essentially duplicate items that have been in satisfactory use for at least five (5) years prior to bid submission.

The fragment retention film is to multiple layers of polyester and shall be optically clear and free of waves and distortion. The manufacturer of the film shall only occur at the ISO 9001 Registered facility of the manufacturer.

For the film to be considered, it must meet the following tests and values.

### **Impact Resistance**

ANSI Z 97.1 100 foot pound impact test – PASS  
CPF 1201 400 foot pound impact test – PASS

### **Tensile Properties**

ASTM D 882 Tensile Strength of 29,000 psi  
ASTM D 882 Elongation at break >100%  
ASTM D 882 Break Strength >200 lbs. per inch of width  
ASTM D882 Tensile Modulus > 550,000 psi  
ASTM D 882 Poisson's Ratio = .38

### **Peel Strength and Aging**

The material shall have initial peel strength of 3,200 rams/inch and possess at least 90% of this value after aging. Aging shall be in accordance with ASTM G 26, procedure B.

### **Abrasion Resistance**

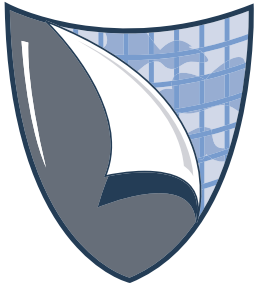
The materials shall exhibit no more than a 5% change in haze when tested in accordance with ASTM D 1044 with a CS 10F Wheel and 500-gram weights.

### **Flame Spread and Smoke Density**

The material, when tested in accordance with ASTM E 84 shall have a flame spread index not to exceed 10 and a smoke density index not to exceed 40. Film shall be tested after being mounted on glass.

### **Puncture Resistance**

The materials, when tested in accordance with ASTM D 4830 shall exhibit a puncture resistance of 120 lbs.



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## SAMPLE OF SPECIFICATION/STATEMENT OF WORK DOCUMENT (CONTINUED)

### **Film Attachment**

Where film attachment is required, only DOW 995 structural silicone may be used. The installation of the silicone is to be in accordance with the GSA requirements for wet glaze attachment systems and Dow Corning's installation techniques as described in Dow's published article TECHtalk entitled The Use of Dow Corning 995 Silicone Structural Adhesive in Retrofit Protective Glazing Installations. In general, the silicone is to cover 1/2" of the fragment retention film and \_" of the window frame. The existing window glazing gasket is not included as part of the \_" coverage. The silicone is to be applied as a triangular bead. Concave beads, beads that attach to the existing glazing gasket only or do not cover approximately \_" of the film and \_" of the metal window frame are unacceptable.

### **References**

Supply a minimum of (5) projects over 35,000 square feet of fragment retention film that included structural silicone attachment systems. Supply at least one fragment retention film of 100,000 square feet or more. Supply project name, address, square footage of film installed, lineal footage of structural silicone installed, contact name and phone number.

### **Submittals**

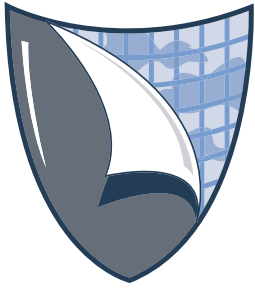
Submit manufacturer's data consisting of catalog cuts, brochures, etc. appropriate to the film being used. A statement that the fragment retention film supplied was manufactured using the same materials and process as the materials tested.

Test results from a GSA recognized and approved testing agency is required. The test results are to include analysis and interpretation of the test results by the tester. Test results shall clearly identify the methods used and shall include the results recorded.

An installation schedule is required within 14 days or notice to proceed.

### **Warranty**

The film is to be warranted for twelve (12) years. The warranty is come directly from the film manufacturer and is not prorated. Any film found to be defective during the warranty period is to be replaced at no charge to the customer. The manufacturer's warranty must state that the cover both the material and the labor required to replace it.



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## SAMPLE OF SPECIFICATION/STATEMENT OF WORK DOCUMENT (CONTINUED)

### **Quantity Required**

Fragment film installer responsible for their own measurements. The number of panes and square footage of glass is to be listed on the proposal.

### **Time of Delivery**

Installation is to commence within 30 days of notice to proceed. Work to be completed within (specify based on the project size).

### **Insurance requirements**

Contractor is required to have insurance. Insurance certificate is to be submitted to the customer prior to receiving a notice to proceed.

### **Security Requirements**

Installers are to have gone through a government security screening. A list of installers and others with the company requiring access are to be provided to the customer and all are to be approved by the customer prior to any work beginning.

### **Film and Caulking installers**

Installers of both fragment retention film and structural silicone are to have a minimum of five (5) years experience and are to have been specifically trained and authorized by the film manufacturer.

### **End of Section**