

**STATEMENT OF WORK**

**MAINTENANCE AND REPAIR SERVICES**

**For**

**COMMERCIAL GLASS WINDOW FILMS**

**At**

**WASHINGTON DULLES INTERNATIONAL AIRPORT**

August 2017

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## **I. INTRODUCTION**

The Metropolitan Washington Airports Authority (Airports Authority) is responsible for the operation, maintenance, and repair of Washington Dulles International Airport (Dulles International). The Airports Authority's headquarters is located at 1 Aviation Circle, Washington, D.C. This Statement of Work (SOW) addresses services, which are to be performed at the airport. Dulles International is located in Loudoun and Fairfax Counties of Virginia.

The purpose of this SOW is to outline an "On Call Service Contract" for the purpose of installing, maintaining, or replacing window film materials i.e. solar control tinting and protection films used throughout the airport. The specifications of the glazing films to be used are located in Section IV.

## **II. DEFINITIONS**

The following list of definitions is provided to clarify verbiage used in this contract:

### **AIR OPERATIONS AREA/AOA**

The AOA is the portion of the airport used or intended to be used for landing, takeoff, or land maneuvering of aircraft.

### **BUSINESS HOURS, AIRPORTS AUTHORITY**

For the purpose of this SOW, regular business hours shall be 7 AM through 3:30 PM EST/EDT, Monday through Friday, excluding weekends and federal holidays.

### **CONTRACTING OFFICER (CO)**

The Contracting Officer (CO) is the Airports Authority representative responsible for executing all administrative functions, such as the terms, scope, price, or conditions of this contract on behalf of the Airports Authority.

### **CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR)**

The Contracting Officer's Technical Representative (COTR) is an Airports Authority employee, designated by the Contracting Officer to ensure the contractor is meeting the terms of the contract. The COTR can **NOT** change the terms, scope, price, or conditions of this contract.

### **CONTRACTOR**

Pertaining to this document, the word "Contractor" refers to the company awarded this contract. It also defines all personnel and sub-contractors hired by the Contractor to perform any services specified within this contract.

### **CONTRACTOR REPRESENTATIVE**

A foreman, supervisor, or manager assigned to represent the interests of the contractor with regards to all matters involving this contract.

### **LANDSIDE**

Areas located in the unsecured or non-sterile portion of the airport.

### **MA-226**

Engineering and Maintenance Department, Maintenance Engineering Division.

### **METROPOLITAN WASHINGTON AIRPORTS AUTHORITY (Airports Authority)**

Metropolitan Washington Airports Authority is the governing body, which operates Washington Dulles International Airport. Also referred to as "the Airports Authority".

**ON CALL SERVICE REQUEST FORM**

Mechanism used to request service from the contractor. The COTR will issue an on call service request form for all work to be performed under this contract. Instructions for what type of work will be done, location of the work i.e. - which terminal the requested work is located in, The material to be used , and a not to exceed cost figure will be included in the contents of the on call service request form.

**QUALITY ASSURANCE (QA)**

Quality Assurance is a program used by the Airports Authority to ensure the contractor is providing the service of this contract as defined by the contract specifications.

**QUALITY CONTROL (QC)**

Quality Control is a program designed by the contractor to monitor its performance in this contract to ensure services are provided on a consistent standard at all times.

**SECURITY OFFICER**

A Security Officer is a person employed at the airport in a capacity to ensure a safe work place. A Security Officer can be a Police Officer or an Airport Operations Officer.

**SIDA**

Abbreviation for the Security Identification Display Area. Identification badges must be displayed at all times while in this area.

**SERVICES**

Includes services performed, workmanship, and material furnished or utilized in the performance of services.

**SOW**

Statement of Work.

**III. STATEMENT OF WORK**

All work will be requested and approved in advance and in writing by the Contracting Officer's Technical Representative (COTR) using the "On Call Service Request" form (**Appendix A**). The on call service request will contain a description of the services that are required from the contractor along with an estimated cost to perform the work. Unless otherwise approved in writing by the COTR, the contractor shall not invoice the Airports Authority for work for an amount greater than the estimated cost provided in the approved on call service request. The contractor shall not proceed with any work until written authorization is provided by the COTR via a signed on call service request form.

The contractor shall provide all Supervision, labor, materials, tools, scaffolding, platforms and all other equipment required to include man-lifts with operators and transportation, necessary to install, repair or replace window tinting and other glass treatment products, i.e. - frosting treatment or protective coverings at Dulles International Airport in accordance with the contract documents.

Work to be completed under this contract will be performed between the hours of 10:00 PM and 6:00 AM when the flow of passengers through the various work areas is at a minimum.

There may be exceptions made when the work to be performed is either a smaller project or located away from the busiest areas i.e., ticket counters and security checkpoints.

**Contractor Responsibility**

1. The contractor will be responsible for new installations, repairs and replacement of damaged window film on glass or acrylic window panels located throughout the airport.
2. All window film used to repair or replace damaged material will comply with the specs listed in the SOW found in Section III, Parts 1 and 2.
3. The area must be cleaned and all debris removed from the area upon completion of the work.

**Part 1 - General**

When it is necessary to replace the window film only approved materials will be used. Solar control window film maintenance shall conform to the requirements specified herein. The Airports Authority intends to use the material listed below or an approved equivalent to conform and match to what is currently installed at the airport. The COTR will specify which type of material is to be used from the list below. Other products may be considered for use if approved by the COTR.

**A. Materials**

The following window film products are currently installed or under consideration for future use at Dulles International Airport. Equivalent products may be approved for use by the COTR or his/her designated alternate.

1. Llumar V33SRCDF is a Low Reflectance, Neutral Solar Control Glazing Film.
2. Llumar NRM PS2 - Frost Pattern Film.
3. Llumar DR25 currently installed on security guard houses.
4. Llumar RHE 20 is used in several exterior applications at Dulles International.
5. Llumar DL05 Privacy film (Blackout) for interior use.
6. Llumar PS8 (8Mil), 3M Ultra 600 series (7Mil) or other equivalent, blast resistant film.
7. Structural Silicone Sealant, example (100 % Silicone Glazing/Caulking), used to seal the edges completely around the window film. .
8. Madico or equivalent Blister Free (2mil) Blast Film for Plexiglas or acrylic materials. Product is a first layer application to prevent bubbling or blistering and will be covered by additional layers of finish material.
9. Clear Safety & Security film – Protective topical layer.

**B. Product Specifications for Solar Control Window Tinting Film  
Items 1.0 through 1.4 of Price Schedule.**

1. Dual Reflective Films: Films where interior visible light reflectance is less than the exterior visible light reflectance. The lower interior reflectance provides improved visibility from the interior to the outdoors without affecting the film's solar performance.

2. Emissivity: The ability of a surface to absorb far-infrared heat and to reflect it. The lower the emissivity, the lower the far-infrared heat absorption and the greater the far-infrared heat reflectance.
3. Far-Infrared Heat: Heat radiated from objects at temperatures below 130°F such as heat radiated from: room objects, objects heated by the sun, or a home heating system. Far-infrared heat is different from near-infrared heat that is heat radiated from objects at highly elevated temperatures such as the sun.
4. Low Emissivity (Low-E) Films: Films with improved far-infrared heat reflection, with the ability to reduce winter heat loss through windows. The reflection of far-infrared heat also reduces the need for summer cooling by reducing the transmission of far-infrared heat from outdoor objects through windows into the interior of a home or building.
5. Low Reflective Films: Films whose visible light reflectance values are very close to that of ordinary glass.
6. Luminous Efficacy: Ratio of visible light transmission to shading coefficient for a glazing system.
7. Neutral Solar Films: Films that allow visible light to pass without distortion of color and that have equal visible light transmission properties at all wavelengths in the visible range from 380 to 780 nanometers.
8. Light to Solar Heat Gain Ratio: Ratio of visible light transmission to Solar Heat Gain Coefficient for a glazing system.
9. Solar Heat Gain Coefficient: The fraction of solar radiation that actually passes through that window, including solar energy that is both directly transmitted and that which is absorbed and subsequently released inwardly by re-radiation and conduction. SHGC is expressed as a number between 0 and 1. The lower a window's solar heat gain coefficient, the less solar heat it transmits. This number is the mathematical complement of the TSER (Total Solar Energy Rejection, in decimal form) value: The sum of the TSER of a glazing system and its SHGC value is 1; therefore,  $1 - \text{TSER} = \text{SHGC}$ .
10. Spectrally Selective Solar Films: Films that reduce solar heat gain mainly by reducing the transmission of near-infrared solar radiation with minimal reduction of visible light transmission. Films with a Light to Solar Heat Gain Ratio of above 1.00 are spectrally selective.

### **C. Performance Requirements**

**Materials used will meet or exceed the ASTM standards listed below.**

1. Thermal and Optical Performance Properties: Provide glazing films with performance properties specified (on 1/8 inch clear glass) based on manufacturer's published test data, as determined according to procedures indicated in ASHRAE Handbook of Fundamentals:
2. Ultraviolet Transmission: Provide films with UV absorbing materials that limit the weighted UV Transmission to less than 0.1 percent when measured in accordance with ASTM E Scratch Resistance: Provide films that have 5.0 percent maximum haze increase when tested to ASTM D 1044, using 100 revolutions, a CS-10F Taber abraser and 500g weights.
3. Surface Burning Characteristics: Provide films that have Flame Spread Index of 0 and Smoke Development Index of 30 or less when tested in accordance to ASTM E 84.

Category	ASTM Spec
Solar Energy Rejected	54.00
Shading Coefficient	0.53
Solar Reflectance	20.00
Solar Absorptance	50.00
Solar Transmittance	30.00
Visible.Light Transmittance	33.00
Emissivity	0.84
U-Value.(winter median)	1.02
Light to solar heat gain ratio	0.72
Solar Heat Gain Coefficient	0.46

4. Submittals:
  - a. Executed warranty.
  - b. Maintenance (cleaning) and replacement instructions

## Part 2 - Products

### A. Manufacturers/Products

Product Description: Multi-layered product applied to interior glass surfaces, consisting of from outboard surface to inboard surface:

1. Removable release liner.
2. CDF adhesive.
3. Clear or dyed ultraviolet absorbing layer of polyester film.
4. Single or multiple layers of metalized or sputtered polyester film.
5. Laminating adhesive.
6. Scratch resistant coating
7. Color: [Neutral - Warm Gray].

### B. Description of Materials from Price Schedule

*\*Other approved products may be selected for use by the COTR*

1. **Item 1.0 – Interior Window Tinting Film (Gray)**  
i.e. - Llumar V33
2. **Item 2.0- Exterior Window Tinting film**  
i.e. - Llumar RHE20
3. **Item 3.0 – Interior Privacy Film (Blackout)**  
Black window film that cannot be seen through.  
i.e. - Llumar DL05 or equivalent.
4. **Item 4.0 - Frosted Film**  
Frosted window film used for this line item should have similar characteristics.  
i.e. - Llumar NRM PS2

3MSH2MAMM Marino/ Milky White Film  
 SOLYX SXHE-01 (Clear Sand Blast) by Decorative Films  
 Llumar NRM PS2

5. **Item 5.0 - Madico Blister Free 2 MM Film**

For use on Acrylics & Plexiglas before installing window tinting film.  
 COTR Approved products with similar characteristics may be considered for use.

6. **Item 6.0 - Blast Resistant Safety & Security Film**

i.e. - Llumar PS8 is a 8mm product that meets or exceeds the spec below.  
 3M – 6mm product that meets or exceeds the spec below.

Minimum film thickness	0.006"
Tensile Strength	180 lbs./in.
Elongation at break	> 125%
Graves Area Tear Resistance	1,150 lbs. %
Puncture Propagation	
Tear Resistance	19.2 lbf
Young`s Modulus	< 500 kpsi
Abrasion Resistance	< 5% haze increase

7. **Item 7.0 – Anchoring – Attachment System for Blast Resistant Film**

i.e. – 3M Ultra-Flex is a tape and structural sealant combination that adds strength to the Blast Resistant Safety & Security film products.

8. **Item 8.0 – Clear Safety & Security Film**

i.e.- Eastman – Llumar SCLSRPS2

**C. Window Tinting Film Accessories**

1. General: Provide products complying with requirements of window film manufacturers for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
2. Adhesive: Water activated dry adhesive system that forms a molecular bond between the film and glass. Protect adhesive form contamination by applying a release liner that will be removed and discarded at installation.
3. Cleaners, Primers, and Sealers: Types recommended by glazing film manufacturer.

**Part 3 - Execution**

**A. Examination**

1. Examine glass and surrounding adjacent surfaces for conditions affecting installation. Report conditions that may adversely affect installation. In report, include description of any glass that is broken, chipped, cracked, abraded, or damaged in any way.
2. Proceed with installation only after unsatisfactory conditions have been corrected.
3. Beginning of installation means acceptance of conditions.



**B. Preparation**

1. Comply with manufacturer's written instructions for surface preparation.
2. Immediately before beginning installation of films, clean glass surfaces of substances that could impair glazing film's bond, including mold, mildew, oil, grease, dirt and other foreign materials.
3. Protect window frames and surrounding conditions from damage during installation.

**C. Installation**

1. General: Comply with glazing film manufacturer's written installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
  - a. Install film continuously, but not necessarily in one continuous length. Install with no gaps or overlaps. If seamed, install with no gaps or overlaps. Install seams vertical and plumb. No horizontal seams allowed.
  - b. Do not remove release liner from film until just before each piece of film is cut and ready for installation.
  - c. Install film with mounting solution and custom cut to the glass with neat, square corners and edges to within 1/8 inch of the window frame.
  - d. Remove air bubbles, wrinkles, blisters, and other defects.
2. After installation, view film from a distance of ten feet against a bright uniform sky or background. Film shall appear uniform in appearance with no visible streaks, bubbles, banding, thin spots or pinholes.
3. If installed film does not meet these criteria, remove and replace with new film.

**D. Cleaning**

1. Remove excess mounting solution at finished seams, perimeter edges, and adjacent surfaces.
2. Use cleaning methods recommended by glazing film manufacturer.
3. Replace films that cannot be cleaned.

**E. Safety**

1. The contractor and each of its employees shall comply with all applicable local, state, federal and Airports Authority rules, regulations and practices.
2. The contractor shall be held responsible for all injury to persons or damage to property that occurs as a result of the contractor's negligence and shall take proper safety and health precautions to protect the work, the workers, the public and the property of others. The contractor shall be responsible for all materials delivered and work performed until completion and acceptance of the work performed.

3. The contractor shall perform all its activities pursuant to this contract in a safe manner. The contractor shall assume responsibility on the job site for the actions of all its personnel and subcontractor(s) who are associated with performance on this contract.
4. The Contractor shall take adequate measures to prevent injury to the public or Airports Authority property on the job sites.

#### **F. Security Procedures**

All work performed inside the secured areas at Dulles International will be done under the escort of a member of the Engineering and Maintenance Department, Maintenance Engineering Division. All rules governing regulations, policies, and procedures, involving the escorting of un-badged individuals shall be followed at all times.

#### **G. Contractor Response**

The Contractor shall start work/repairs issued on the approved/signed on call service request form within five (5) business days. Any exception shall be approved by the COTR.

#### **H. Inspection of Work**

The repairs made shall be subject to inspection by the contracting officer (CO), COTR or his/her authorized representative(s), who may require the Contractor to correct any defect(s) or workmanship without cost to the Airports Authority.

### **IV. SUPPLEMENTAL SERVICES**

- A. The Airports Authority shall, during the course of this contract, direct the Contractor using the "on call service request form" to perform supplemental services as requirements occur.
- B. **The Airports Authority will incur no obligation for supplemental services not authorized in writing.** The Contractor will be reimbursed for supplemental service tasks in accordance with the fully loaded labor or task rates specified in the cost schedule. There will be no mark up for shipping and handling costs.
- C. The Contractor will not invoice the Airports Authority for supplemental services unless a signed Call Order by the COTR has been received and until all the work described in the Call Order has been completed to the satisfaction of the COTR. The Airports Authority will incur no obligation for work that is not authorized in advance with a signed on call service request form (Call Order).
- D. Supplemental Service Work is defined in the Price Schedule (Appendix, B).
- E. The Contractor shall furnish all necessary supervision, labor, materials, tools, scaffolding, platforms, and any additional equipment required to include Man lifts, man lift operators, vehicles, fuel, and all incidental expenses necessary to perform the following services. Window Glazing such as - maintenance, repairs & installation of window tinting, protective overlays, blast protection film, and sealant (caulking) repairs at Washington Dulles International Airport in accordance with the contract documents. All work performed will be compensated at the rates listed in the Price Schedule.

**V. METHOD OF PAYMENT**

The contractor shall only submit invoices to the Airports Authority for work that has been completed in accordance with this SOW to the satisfaction of the COTR. All payments to the contractor shall be made in accordance with the Price Schedule.

The Airports Authority will pay the contractor for individual tasks in accordance with the unit prices in the Price Schedule. Service costs shall be invoiced to the Airports Authority in full, during the calendar month immediately after the work requested on the on call service request form is completed by the contractor and approved by the COTR. Unless otherwise approved in writing by the COTR, the contractor shall not invoice the Airports Authority for services for an amount greater than the cost estimate provided by the contractor in the On Call Service request form approved by the COTR before commencement of the work.

**APPENDICES**

**APPENDIX A – CONTRACT SERVICES CALL ORDER**

**APPENDIX A**  
**CONTRACT SERVICES CALL ORDER**

