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Graffiti Shield specializes in the manufacturing and installation of surface protection films that are commonly used for graffiti abatement property protection and damage control. With a project portfolio that spans a multitude of industries; including mass transit, sports stadiums, fast food restaurants, universities, and healthcare facilities; Graffiti Shield offers unique solutions to common and costly surface damage problems in many commercial environments.

Graffiti Shield's product line includes:



Glass Shield is a 6 mil and 4 mil thick Anti-Graffiti abatement film designed to be a clear undetectable sacrificial coating on glass.



Metal Shield is a thick surface protection film formulated for application to existing metal surfaces and to replicate a Stainless Steel or Brushed Aluminum finish.



Mirror Shield offers the reflective look of a mirror, while providing protection to the surface underneath.



Graffiti Shield offers a full line of custom products and has the ability to produce unique custom products for almost any substrate.

Surfaces protected by Graffiti Shield products include:

- Glass
- Stainless Steel
- Mirrors
- Stone
- Metal Cladding
- Aluminum
- Polycarbonate
- Smooth Laminates
- Metal Frames

GRAFFITI SHIELD INC.



SAMPLES & SPECIFICATIONS



PRODUCT TESTING AND SPECIFICATIONS

	Glass Shield 4-Mil/6-Mil	Glass Shield Poly	Glass Shield NH70 6-Mil/12-Mil	Metal Shield Brushed Aluminum	Metal Shield Stainless Steel	Metal Shield Brushed Gold	Mirror Shield	Custom Shield
TESTING								
Thickness	.004/.006	0.006	.006/.0125	0.0065	0.006	0.008	0.005	.005/.0075
Widths	36"/48"/60"/72"	60"	59"	59"	60"	59"	60"	47"/59"
Liner Thickness	0.001	0.001	0.003	0.003	0.003	0.003	0.003	0.003
Scratch Resistant Z26.1 Test 17	YES	YES	YES	YES	YES	YES	YES	N/A
Chemical Resistant Z26.1 Test 19	YES	YES	YES	YES	YES	YES	YES	N/A
Acid Resistant	YES	YES	YES	YES	YES	YES	YES	N/A
ASTM E84-16 Flame & Smoke Spread	Class A	Class A	Class A	Class A	Class A	Class A	Class A	*Pass
ASTM E-162 Flame Spread	Pass	Pass	Pass	Pass	Pass	Pass	Pass	*Pass
ASTM E-662-17 Smoke Generation	Pass	Pass	Pass	Pass	Pass	Pass	Pass	*Pass
ASTM D-882 Tensile	Pass	Pass	Pass	Pass	Pass	Pass	Pass	*Pass
ASTM D-3330 Peel	Pass	Pass	Pass	Pass	Pass	Pass	Pass	*Pass
ANSI Z97.1 National Std. for Safety Glazing	Pass	Pass	Pass	N/A	N/A	N/A	Pass	*Pass
CPSC 16 CFR 1201 Cat 1	Pass	Pass	Pass	N/A	N/A	N/A	Pass	*Pass
Z26.1 Test 1,2,28	Pass	Pass	Pass	N/A	N/A	N/A	N/A	N/A

SPECIFICATIONS								
Solar Heat Gain Coefficient	0.82	0.8	N/A	0.2	0.18	N/A	0.04	N/A
Total Solar Energy Rejected	17%	19%	44%	78.2%	80.9%	N/A	95.7%	N/A
Solar Energy Reflected	11%	10%	N/A	48.0%	42.2%	N/A	88%	N/A
Solar Energy Absorbed	10%	15%	N/A	41.0%	56.6%	N/A	11%	N/A
Solar Energy Transmitted	82%	73%	N/A	1.1%	1.2%	N/A	1%	N/A
Visible Light Reflected	10%	11%	7%	54.0%	40.5%	N/A	89%	N/A
Visible Light Transmitted	88%	83%	65%	0.4%	0.6%	N/A	0%	N/A
UV Rejection	99%	93%	99%	99%	99%	N/A	99%	N/A
IR Rejection	24%	N/A	37%	97.5%	98.3%	N/A	98.7%	N/A

GLASS SHIELD

BY GRAFFITI SHIELD, INC.

Glass Shield is a 6 mil and 4 mil thick Anti-Graffiti abatement film designed to be a clear, undetectable sacrificial coating on glass. Once damaged by vandals in the form of scratching, carving, or even acid, it can simply be removed by our technicians and replaced in moments giving your glass a "new like" appearance.

Surfaces protected by Glass Shield products include:

- Glass
- Retail Storefronts
- Mirrors
- Public Map Display Cases
- Signage
- Fuel Pumps
- Vending Machines
- Vending Ticket Machines
- Elevators / Escalators

Finishing Options:

- CNC Pre-Cuts
- Custom Part Numbers for Easy Re-orders
- Radius Corners & Custom Printed Graphic





Glass Surface Protection



Benefits

- Protects glass from sharp object etching
- Acid, paint, and marker resistant
- 99% UV A & B protection
- Sacrificial invisible protection
- Removable adhesive system
- 1/4 the cost of new glass

Uses

- Storefronts
- Restroom mirrors
- Escalator and elevators
- Vending and ticket vending machines
- Fuel pumps
- Displays and signs

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.004 (4-Mil)
Liner Thickness	.001 (1-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass
ANSI Z97.1	Pass
CPSC 16 CFR1201 Cat I	Pass



Graffiti Shield, Inc. 2940 E. La Palma Ave Suite D Anaheim, CA 92806

714-575-1100 www.Graffiti-Shield.com

SECTION 08800

WINDOW FILM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Anti-graffiti window films for glazing systems and mirrors.

1.2 RELATED SECTIONS

- A. Section 08300 – Mirrors; mirrors for architectural application to receive window film.
- B. Section 08500 - Windows; windows to receive architectural window film.
- C. Section 08600 - Skylights; glass skylights to receive architectural window film.
- D. Section 08800 - Glazing; general glazing applications to receive architectural window film.
- E. Section 08900 - Glazed Curtain Walls; curtain walls to receive architectural window film.

1.3 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
 - 2. ANSI Z26.1 Safety Glazing Materials
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM D 882 - Tensile Properties of Thin Plastic Sheeting.
 - 2. ASTM D 3330 - Peel-Adhesion at 180 Degree Angle.
 - 3. ASTM E 84-16 - Surface Burning Characteristics of Building Materials.
 - 4. ASTM E 162-16 – Flame Spread
 - 5. ASTM E 662-17 – Smoke Generation
- C. Consumer Product Safety Commission
 - 1. CPSC 16 CFR 1201



SECTION 08800

WINDOW FILM

1.4 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E 84-16:
 - 1. Flame Spread: 25, maximum.
 - 2. Smoke Developed: 450, maximum.
 - 3. Must meet Class A Interior Wall and Ceiling Finish
- B. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, less than a 5% change of transmitted light haze will result. This is in accordance with ANSI Z26.1 using 50 cycles and 300 grams of weight and the CF 10 Calbrase wheel.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Selection Samples: For each film specified, submit film samples representing manufacturer's film type for the project.
- D. Verification Samples: For each film specified, two samples representing film color and pattern.
- E. Performance Submittals: Provide laboratory data of emissivity and calculated window U-Factors for various outdoor temperatures based upon established calculation procedure defined by the ASHRAE Handbook of Fundamentals, Chapter 29, or Lawrence Berkeley Laboratory Window 5.2 Computer Program.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years' industry experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
 - 1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
 - 2. Provide proof of ability to purchase material through authorized distributor or manufacture.
 - 3. Material is to be precut and made to fit panel with no more than 1/8" tolerance and have .2 radius corners to alleviate peeling at corners.
 - 4. Precutting must be done via CNC or similar device to ensure clean cutting is done.
 - 5. Part number or cataloging is recommended. Engraved in predetermined corner on surface of film with minimum 1/2 font for viewing and cataloging.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.
- C. Please recycle materials to reduce carbon footprint.



SECTION 08800

WINDOW FILM

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Anti-graffiti films are warranted for a period of 2 years when installed outdoors and installed indoors. Installation must be done to manufacturer's guidelines. Warranty is for material failure, not against vandalism.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
Graffiti Shield, Inc.
2940 E. La Palma Ave Suite D
Anaheim, CA 92806
(714) 575-1100
sales@graffiti-shield.com
www.graffiti-shield.com

- B. Acceptable Distributor/Installer:

- C. Requests for substitutions will be considered in accordance with provisions of Section 1.6.

2.2 ANTI-GRAFFITI WINDOW AND SURFACE FILM

- A. Anti-Graffiti Window and Surface Film: Glass Shield 4-Mil Anti-Graffiti Film. Optically clear polyester film with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive over the other. The film may be laminated to other clear polyester film layers to achieve the desired thickness of the film.
 1. Physical / Mechanical Performance Properties:
 - a. Film Color: Clear.
 - b. Thickness: Nominal 4.0 mils (.004 in.).
 - c. Tensile Strength (ASTM D 882): 28,000-30,000 lbs./psi.
 - d. Break Strength (ASTM D 882) (Per Inch Width): 190 lbs.
 - e. Elongation at Break (ASTM D 882): >100 percent.
 - f. Peel Strength: 1,000 g/inch. (ASTM D 3330).
 - g. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, less than a 5% change of transmitted light haze will result. This is in accordance with ANSI Z26.1 using 50 cycles and 300 grams of weight and the CF 10 Calbrase wheel.
 - h. Safety Glazing Materials Performance Characteristics (ANSI Z26.1)
Pass The Following Tests:
 1. Light stability test 1
 2. Luminous transmission test 2
 3. Abrasion test 17
 4. Chemical resistance test 19
 5. Temperature change test 28
 - i. Impact (ANSI Z97.1 and CPSC CFR 1201)
 1. Meet requirements of CPSC, Category I, ANSI Class B
 - j. Surface Burn Radiant Heat Source (ASTM E 162-16)
 1. Radiant panel index of 0 (zero)
 - k. Surface Burn Building Materials (ASTM E 84-16)



SECTION 08800

WINDOW FILM

1. Flame spread index = 0
2. Smoke develop index = 115
- I. Optical Density of Smoke (ASTM E 662-17)
 1. Ds = 0 @ 1.5 min
 2. Ds = 0 @ 4 min
 3. Ds Max < 53 Radiant Source
 4. Ds Max < 84 Pilot Flame
2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
4. Identification: Labeled as to Manufacturer as listed in this Section.
5. Solar Performance Properties: Film applied to 1/4 Inch (6.4 mm) thick clear glass.
 - a. Visible Light Transmission (ASTM E 903): 88 percent.
 - b. Total Solar Reflection (ASTM E 903): Not more than 10 percent.
 - c. Ultraviolet Transmission (ASTM E 903): Less than 1 percent.
 - d. Total Solar Energy Rejection: 17 percent
6. Acid Resistant Top Coat. Must have an acid resistant top coat that does not mar during a vandal attack when acid etching agents are used. Acid agent must wipe off clean and leave no residue in top coat.

PART 3 EXECUTION

3.1 EXAMINATION

- A. If preparation of glass surfaces is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
 1. Glass surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance:
- B. Do not proceed with installation until glass surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
- C. Commencement of installation constitutes acceptance of conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Tools needed: Spray bottle/tank, slip solution, squeegee/s, snap off blade knife, plastic hard card, lint free towels, SS scraper or nonabrasive scrub pad.
- C. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant. Use new snap off blades as needed.
- D. Remove film and clean glass surface with slip solution (slip solution is composed of 3/4 oz. (4 pumps) of slip solution per quart of filtered water) and nonabrasive scrub pad or SS scraper to remove all debris from surface. Clean all edges of frames to clear them of any additional debris.
- E. Remove release liner and spray slip solution on adhesive thoroughly and mist the glass to facilitate proper positioning of film.
- D. Apply film to glass and position correctly, then lightly spray film with slip solution.



SECTION 08800

WINDOW FILM

- E. Squeegee the top section from middle to the left, then to the right. Next squeegee down center from top to bottom. Then from center to the left with overlapping passes towards the bottom, then from the center to the right with overlapping passes towards the bottom. Spray slip solution to film and repeat squeegee pattern a second time.
- G. Wrap lint free towel around plastic hard card and press any additional water out around all edges. Once done, inspect entire surface for any left over water and remove.
- H. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.

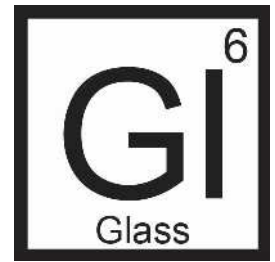
3.4 CLEANING AND PROTECTION

- A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION



Glass Surface Protection



Benefits

- Protects glass from sharp object etching
- Acid, paint, and marker resistant
- 99% UV A & B protection
- Sacrificial invisible protection
- Removable adhesive system
- 1/4 the cost of new glass

Uses

- Storefronts
- Restroom mirrors
- Escalator and elevators
- Vending and ticket vending machines
- Fuel pumps
- Displays and signs

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.006 (6-Mil)
Liner Thickness	.001 (1-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass
ANSI Z97.1	Pass
CPSC 16 CFR1201 Cat I	Pass



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SECTION 08800

WINDOW FILM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Anti-graffiti window films for glazing systems and mirrors.

1.2 RELATED SECTIONS

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- D. Section 08800 - Glazing; general glazing applications to receive architectural window film.
- E. Section 08900 - Glazed Curtain Walls; curtain walls to receive architectural window film.

1.3 REFERENCES

- A. American National Standards Institute (ANSI):
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 - 2. ANSI Z26.1 Safety Glazing Materials
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM D 882 - Tensile Properties of Thin Plastic Sheeting.
 - 2. ASTM D 3330 - Peel-Adhesion at 180 Degree Angle.
 - 3. ASTM E 84-16 - Surface Burning Characteristics of Building Materials.
 - 4. ASTM E 162-16 – Flame Spread
 - 5. ASTM E 662-17 – Smoke Generation
- C. Consumer Product Safety Commission
 - 1. CPSC 16 CFR 1201



SECTION 08800

WINDOW FILM

1.4 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E 84-16:
 - 1. Flame Spread: 25, maximum.
 - 2. Smoke Developed: 450, maximum.
 - 3. Must meet Class A Interior Wall and Ceiling Finish
- B. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, less than a 5% change of transmitted light haze will result. This is in accordance with ANSI Z26.1 using 50 cycles and 300 grams of weight and the CF 10 Calbrase wheel.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Selection Samples: For each film specified, submit film samples representing manufacturer's film type for the project.
- D. Verification Samples: For each film specified, two samples representing film color and pattern.
- E. Performance Submittals: Provide laboratory data of emissivity and calculated window U-Factors for various outdoor temperatures based upon established calculation procedure defined by the ASHRAE Handbook of Fundamentals, Chapter 29, or Lawrence Berkeley Laboratory Window 5.2 Computer Program.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years' industry experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
 - 1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
 - 2. Provide proof of ability to purchase material through authorized distributor or manufacture.
 - 3. Material is to be precut and made to fit panel with no more than 1/8" tolerance and have .2 radius corners to alleviate peeling at corners.
 - 4. Precutting must be done via CNC or similar device to ensure clean cutting is done.
 - 5. Part number or cataloging is recommended. Engraved in predetermined corner on surface of film with minimum ½ font for viewing and cataloging.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.
- C. Please recycle materials to reduce carbon footprint.



SECTION 08800

WINDOW FILM

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Anti-graffiti films are warranted for a period of 2 years when installed outdoors and installed indoors. Installation must be done to manufacturer's guidelines. Warranty is for material failure, not against vandalism.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
Graffiti Shield, Inc.
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www.graffiti-shield.com

- B. Acceptable Distributor/Installer:

- C. Requests for substitutions will be considered in accordance with provisions of Section 1.6.

2.2 ANTI-GRAFFITI WINDOW AND SURFACE FILM

- A. Anti-Graffiti Window and Surface Film: Glass Shield 6-Mil Anti-Graffiti Film. Optically clear polyester film with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive over the other. The film may be laminated to other clear polyester film layers to achieve the desired thickness of the film.
 - 1. Physical / Mechanical Performance Properties:
 - a. Film Color: Clear.
 - b. Thickness: Nominal 6.0 mils (.006 in.).
 - c. Tensile Strength (ASTM D 882): 28,000-30,000 lbs./psi.
 - d. Break Strength (ASTM D 882) (Per Inch Width): 190 lbs.
 - e. Elongation at Break (ASTM D 882): >100 percent.
 - f. Peel Strength: 1,000 g/inch. (ASTM D 3330)
 - g. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, less than a 5% change of transmitted light haze will result. This is in accordance with ANSI Z26.1 using 50 cycles and 300 grams of weight and the CF 10 Calbrase wheel.
 - h. Safety Glazing Materials Performance Characteristics (ANSI Z26.1)
Pass The Following Tests:
 - 1. Light stability test 1
 - 2. Luminous transmission test 2
 - 3. Abrasion test 17
 - 4. Chemical resistance test 19
 - 5. Temperature change test 28
 - i. Impact (ANSI Z97.1 and CPSC CFR 1201)
 - 1. Meet requirements of CPSC, Category I, ANSI Class B
 - j. Surface Burn Radiant Heat Source (ASTM E 162-16)
 - 1. Radiant panel index of 0 (zero)
 - k. Surface Burn Building Materials (ASTM E 84-16)



SECTION 08800

WINDOW FILM

1. Flame spread index = 0
2. Smoke develop index = 115
- I. Optical Density of Smoke (ASTM E 662-17)
 1. Ds = 0 @ 1.5 min
 2. Ds = 0 @ 4 min
 3. Ds Max < 53 Radiant Source
 4. Ds Max < 84 Pilot Flame
2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
4. Identification: Labeled as to Manufacturer as listed in this Section.
5. Solar Performance Properties: Film applied to 1/4 Inch (6.4 mm) thick clear glass.
 - a. Visible Light Transmission (ASTM E 903): 88 percent.
 - b. Total Solar Reflection (ASTM E 903): Not more than 10 percent.
 - c. Ultraviolet Transmission (ASTM E 903): Less than 1 percent.
 - d. Total Solar Energy Rejection: 17 percent
6. Acid Resistant Top Coat. Must have an acid resistant top coat that does not mar during a vandal attack when acid etching agents are used. Acid agent must wipe off clean and leave no residue in top coat.

PART 3 EXECUTION

3.1 EXAMINATION

- A. If preparation of glass surfaces is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
 1. Glass surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance:
- B. Do not proceed with installation until glass surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
- C. Commencement of installation constitutes acceptance of conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Tools needed: Spray bottle/tank, slip solution, squeegee/s, snap off blade knife, plastic hard card, lint free towels, SS scraper or nonabrasive scrub pad.
- C. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant. Use new snap off blades as needed.
- D. Remove film and clean glass surface with slip solution (slip solution is composed of 3/4 oz. (4 pumps) of slip solution per quart of filtered water) and nonabrasive scrub pad or SS scraper to remove all debris from surface. Clean all edges of frames to clear them of any additional debris.
- E. Remove release liner and spray slip solution on adhesive thoroughly and mist the glass to facilitate proper positioning of film.
- D. Apply film to glass and position correctly, then lightly spray film with slip solution.



SECTION 08800

WINDOW FILM

- E. Squeegee the top section from middle to the left, then to the right. Next squeegee down center from top to bottom. Then from center to the left with overlapping passes towards the bottom, then from the center to the right with overlapping passes towards the bottom. Spray slip solution to film and repeat squeegee pattern a second time.
- G. Wrap lint free towel around plastic hard card and press any additional water out around all edges. Once done, inspect entire surface for any left over water and remove.
- H. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.

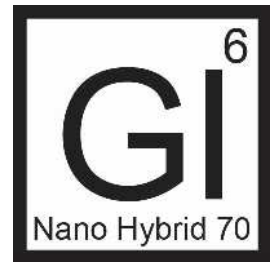
3.4 CLEANING AND PROTECTION

- A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION



Glass Surface Protection



Benefits

- Protects glass from sharp object etching
- Acid, paint, and marker resistant
- 99% UV A & B protection
- 70% IR rejection
- 44% Total solar energy rejection
- Glare reduction
- Sacrificial protection
- Removable adhesive system
- 1/4 the cost of new glass

Uses

- Storefronts
- Light rail trains
- Buses

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.006 (6-Mil)
Liner Thickness	.003 (3-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162=16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass
ANSI Z97.1	Pass
CPSC 16 CFR1201 Cat I	Pass

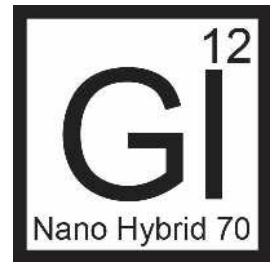


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Glass Surface Protection



Benefits

- Protects glass from sharp object etching
- Acid, paint, and marker resistant
- 99% UV A & B protection
- 70% IR rejection
- 44% Total solar energy rejection
- Glare reduction
- Sacrificial protection
- Removable adhesive system
- 1/4 the cost of new glass

Uses

- Storefronts
- Light rail trains
- Buses

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.012 (12-Mil)
Liner Thickness	.003 (3-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass
ANSI Z97.1	Pass
CPSC 16 CFR1201 Cat I	Pass

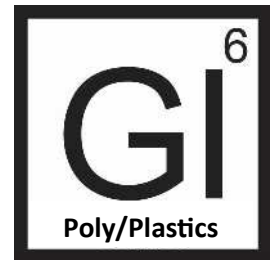


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Polycarbonate/Plastic Surface Protection



Benefits

- Protects poly and plastics from sharp object etching
- Acid, paint, and marker resistant
- 99% UV A & B protection
- Sacrificial invisible protection
- Removable adhesive system

Uses

- Storefronts
- Restroom mirrors
- Escalator and elevators
- Vending and ticket vending machines
- Fuel pumps
- Displays and signs

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.006 (6-Mil)
Liner Thickness	.001 (1-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass



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METAL SHIELD

BY GRAFFITI SHIELD, INC.

Metal Shield is a thick surface protection film formulated for application to existing metal surfaces and to replicate a Stainless Steel or Brushed Aluminum finish. This film is thick enough to protect the substrate from normal damage or to cover up existing damage while bringing the original surface back to a new, factory finish.

Surfaces protected by Metal Shield products include:

- Elevators
- Escalators
- Restroom Partitions
- Sign Posts
- Fuel Pumps
- Wall Panels
- Vending Machines
- Vending Ticket Machines
- Fast Food Counter Tops

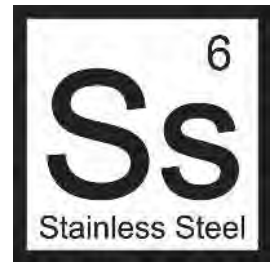
Finishing Options:

- CNC Pre-Cuts
- Custom Part Numbers for Easy Re-orders
- Radius Corners & Custom Printed Graphic





Metal Surface Protection



Benefits

- Protects surfaces from sharp object etching
- Acid, paint, and marker resistant
- Sacrificial protection
- Removable adhesive system
- 1/10 the cost of new stainless steel
- Disappears on 304 stainless steel with #4 brush
- No need to repair existing damage
- Covers existing damage and discolorations

Uses

- Restroom partitions
- Elevators cabs and doors
- Escalator sides and surrounds
- Printable advertising media
- Bus shelters
- Ticket vending machines

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.006 (6-Mil)
Liner Thickness	.003 (3-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass

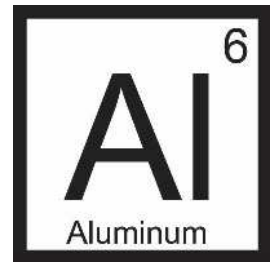


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Metal Surface Protection



Benefits

- Protects surfaces from sharp object etching
- Acid, paint, and marker resistant
- Sacrificial protection
- Removable adhesive system
- 1/10 the cost of new stainless steel
- Disappears on bright stainless steel
- No need to repair existing damage
- Covers existing damage and discolorations

Uses

- Restroom partitions
- Elevators cabs and doors
- Escalator sides and surrounds
- Printable advertising media
- Bus shelters
- Ticket vending machines

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.006 (6-Mil)
Liner Thickness	.003 (3-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass



Graffiti Shield, Inc. 2940 E. La Palma Ave Suite D Anaheim, CA 92806

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Metal Surface Protection



Benefits

- Protects surfaces from sharp object etching
- Acid, paint, and marker resistant
- Sacrificial protection
- Removable adhesive system
- 1/10 the cost of new brushed gold panels
- No need to repair existing damage
- Covers existing damage and discolorations

Uses

- Elevators cabs and doors
- Escalator sides and surrounds
- Printable advertising media
- Bus shelters

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.0065 (6.5-Mil)
Liner Thickness	.003 (3-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662-17	Pass
VOC Emission	Pass



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SECTION 09000

FINISHES AND COATINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Anti-graffiti coating for metal and flat hard surfaces.

1.2 RELATED SECTIONS

- A. Section 05 5000 - Metal Fabrications
- B. Section 09 7700 - Special Wall Surfaces
- C. Section 09 9460 - Metallics, Patinas and Chrome Finishes
- D. Section 09 9620 - Graffiti-Resistant Coatings
- E. Section 09 9700 - Special Coatings

1.3 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI Z26.1 - Safety Glazing Materials
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM D 882 - Tensile Properties of Thin Plastic Sheeting.
 - 2. ASTM D 3330 - Peel-Adhesion at 180 Degree Angle.
 - 3. ASTM E 84-16 - Surface Burning Characteristics of Building Materials.
 - 4. ASTM E 162-16 – Flame Spread
 - 5. ASTM E 662-17 – Smoke Generation
 - 6. ASTM D 532-14 – Standard Test Method For Specular Gloss
- C. Consumer Product Safety Commission
 - 1. CPSC 16 CFR 1201

1.4 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E 84-16:
 - 1. Flame Spread: 25, maximum.
 - 2. Smoke Developed: 450, maximum.
 - 3. Must meet Class A Interior Wall and Ceiling Finish
- B. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, a gloss factor less than 5% at 20 degrees, 60 degrees, and 85 degrees per ANSI Z26.1 Test 17 and ASTM D 523.



SECTION 09000

FINISHES AND COATINGS

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Selection Samples: For each film specified, submit film samples representing manufacturer's film type for the project.
- D. Verification Samples: For each film specified, two samples representing film color and pattern.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years' industry experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
 - 1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
 - 2. Provide proof of ability to purchase material through authorized distributor or manufacture.
 - 3. Material is to be precut and made to fit panel with no more than 1/8" tolerance and have .2 radius corners to alleviate peeling at corners.
 - 4. Precutting must be done via CNC or similar device to ensure clean cutting is done.
 - 5. Part number and cataloging is done and stored in a database by area, property, or location to allow easy reordering of panels. Engraved in predetermined corner on surface of film with minimum ½ font for viewing and cataloging.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.
- D. Material attributes.
 - 1. Materials must be manufactured of extruded PET and/or Polyurethane.
 - 2. Material must have a deposition of mixed metals to match Stainless Steel 304 or Brushed Aluminum with #4-line grain finish.
 - 3. Adhesive must be a removable system to allow adhesive to bond to material upon removal.
 - 4. Material thickness minimum of .006 in (6-Mil)
 - 5. Acrylic based hard for scratch resistance and acid attack resistance.
 - 6. Adhesive protective release liner minimum thickness of .003 in (3-Mil)

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.
- C. Please recycle materials to reduce carbon footprint.



SECTION 09000

FINISHES AND COATINGS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Anti-graffiti films are warranted for a period of 12 months when installed outdoors and installed indoors. Installation must be done to manufacturer's guidelines. Warranty is for material failure, not against vandalism.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
Graffiti Shield, Inc.
2940 E. La Palma Ave Suite D
Anaheim, CA 92806
(714) 575-1100
sales@graffiti-shield.com
www.graffiti-shield.com
- B. Acceptable Distributor/Installer:
- C. Requests for substitutions will be considered in accordance with provisions of Section 1.6.

2.2 ANTI-GRAFFITI SURFACE FILM

- A. Anti-Graffiti Surface Film: Metal Shield Stainless Steel 6 Mil Anti-Graffiti Film. Stainless Steel polyester film with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive over the other.
 - 1. Physical / Mechanical Performance Properties:
 - a. Film Color: Opaque and mimic Stainless Steel.
 - b. Thickness: Nominal 6 mils (.006 in).
 - c. Tensile Strength (ASTM D 882): 28,000-30,000 lbs./psi.
 - d. Break Strength (ASTM D 882) (Per Inch Width): 190 lbs.
 - e. Elongation at Break (ASTM D 882): >100 percent.
 - f. Peel Strength: 1,000 g/inch. (ASTM D 3330)
 - g. Abrasion Resistance (ASTM D 523): ANSI Z26.1 Test 17 with a gloss factor less than 5% at 20 degrees, 60 degrees, and 85 degrees
 - h. Chemical Resistance (ASTM D 523): ANSI Z26.1 Test 19-Pass
 - i. Radiant panel index of 0 (zero)
 - j. Surface Burn Building Materials (ASTM E 84-16)
 - 1. Flame spread index = 15
 - 2. Smoke develop index = 110
 - k. Optical Density of Smoke (ASTM E 662-17)
 - 1. Ds = 0 @ 1.5 min
 - 2. Ds = >1.0 @ 4 min
 - 3. Ds Max < 63 Radiant Source
 - 4. Ds Max < 64 Pilot Flame
 - 2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
 - 3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
 - 4. Identification: Labeled as to Manufacturer as listed in this Section.
 - 5. Acid Resistant Top Coat. Must have an acid resistant top coat that does not mar during a vandal attack when acid etching agents are used. Acid agent must



SECTION 09000

FINISHES AND COATINGS

- B. Anti-Graffiti Surface Film: Metal Shield Brushed Aluminum 6.5-Mil Anti-Graffiti Film. Brushed Aluminum polyester film with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive over the other.

1. Physical / Mechanical Performance Properties:
 - a. Film Color: Opaque and mimic Brushed Aluminum.
 - b. Thickness: Nominal 6 mils (.006 in).
 - c. Tensile Strength (ASTM D 882): 28,000-30,000 lbs./psi.
 - d. Break Strength (ASTM D 882) (Per Inch Width): 190 lbs.
 - e. Elongation at Break (ASTM D 882): >100 percent.
 - f. Peel Strength: 1,000 g/inch. (ASTM D 3330)
 - g. Abrasion Resistance (ASTM D 523): ANSI Z26.1 Test 17 with a gloss factor less than 5% at 20 degrees, 60 degrees, and 85 degrees
 - h. Chemical Resistance (ASTM D 523): ANSI Z26.1 Test 19-Pass
 - i. Radiant panel index of 0 (zero)
 - j. Surface Burn Building Materials (ASTM E 84-16)
 1. Flame spread index = 15
 2. Smoke develop index = 110
 - k. Optical Density of Smoke (ASTM E 662-17)
 1. Ds = 0 @ 1.5 min
 2. Ds = >1.0 @ 4 min
 3. Ds Max < 63 Radiant Source
 4. Ds Max < 64 Pilot Flame
2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
4. Identification: Labeled as to Manufacturer as listed in this Section.
5. Acid Resistant Top Coat. Must have an acid resistant top coat that does not mar during a vandal attack when acid etching agents are used. Acid agent must wipe off clean and leave no residue in top coat.

- C. Anti-Graffiti Surface Film: Metal Shield Gold Brushed 6.5-Mil Anti-Graffiti Film. Gold Brushed polyester film with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive over the other.

1. Physical / Mechanical Performance Properties:
 - a. Film Color: Opaque and mimic Brushed Gold.
 - b. Thickness: Nominal 6 mils (.006 in).
 - c. Tensile Strength (ASTM D 882): 28,000-30,000 lbs./psi.
 - d. Break Strength (ASTM D 882) (Per Inch Width): 190 lbs.
 - e. Elongation at Break (ASTM D 882): >100 percent.
 - f. Peel Strength: 1,000 g/inch. (ASTM D 3330)
 - g. Abrasion Resistance (ASTM D 523): ANSI Z26.1 Test 17 with a gloss factor less than 5% at 20 degrees, 60 degrees, and 85 degrees
 - h. Chemical Resistance (ASTM D 523): ANSI Z26.1 Test 19-Pass
 - i. Radiant panel index of 0 (zero)
 - j. Surface Burn Building Materials (ASTM E 84-16)
 1. Flame spread index = 15
 2. Smoke develop index = 110
 - k. Optical Density of Smoke (ASTM E 662-17)
 1. Ds = 0 @ 1.5 min
 2. Ds = >1.0 @ 4 min
 3. Ds Max < 63 Radiant Source
 4. Ds Max < 64 Pilot Flame
2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
4. Identification: Labeled as to Manufacturer as listed in this Section.



SECTION 09000

FINISHES AND COATINGS

5. Acid Resistant Top Coat. Must have an acid resistant top coat that does not mar during a vandal attack when acid etching agents are used. Acid agent must wipe off clean and leave no residue in top coat.

PART 3 EXECUTION

3.1 EXAMINATION

- A. If preparation of surfaces is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
 1. Surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance:
- B. Do not proceed with installation until surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
- C. Commencement of installation constitutes acceptance of conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Tools needed: Spray bottle/tank, slip solution, squeegee/s, snap off blade knife, plastic hard card, lint free towels, nonabrasive scrub pad or 220 grit sand paper.
- C. Film should be cut by CNC or similar device to have no more than 1/8" tolerance on all edges.
- D. Remove film and clean surface with slip solution (slip solution is composed of 3/4 oz. (4 pumps) of slip solution per quart of filtered water) and nonabrasive scrub pad or 220 grit sandpaper to remove all debris or deep tags from surface. Clean all edges of the surface to clear them of any additional debris.
- E. Remove release liner and spray slip solution on adhesive thoroughly and mist the surface to facilitate proper positioning of film.
- D. Apply film to surface and position correctly, then lightly spray film with slip solution.
- E. Squeegee the top section from middle to the left, then to the right. Next squeegee down center from top to bottom. Then from center to the left with overlapping passes towards the bottom, then from the center to the right with overlapping passes towards the bottom. Spray slip solution to film and repeat squeegee pattern a second time.
- G. Wrap lint free towel around plastic hard card and press any additional water out around all edges. Once done, inspect entire surface for any left over water and remove.
- H. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.

3.4 CLEANING AND PROTECTION

- A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

MIRROR SHIELD

BY GRAFFITI SHIELD, INC.

Mirror Shield offers the reflective look of a mirror, while providing protection to the surface underneath. If a mirror is vandalized, the installation of Mirror Shield can prevent the need to replace the mirror and will further protect it from damage.

Surfaces protected by Mirror Shield products include:

- Mirrors
- Retail Mirrors
- Medical Facility Mirrors
- Fast Food Mirrors
- Gas Station Mirrors
- Movie Theatre Mirrors
- Educational Facility Mirrors
- Restaurant Mirrors
- Amusement Park Mirrors

Finishing Options:

- CNC Pre-Cuts
- Custom Part Numbers for Easy Re-orders
- Radius Corners & Custom Printed Graphic





Mirror Surface Protection



Benefits

- Protects mirrors from sharp object etching
- Acid, paint, and marker resistant
- Sacrificial protection
- Removable adhesive system
- 1/4 the cost of new mirrors
- Disappears on mirror
- No need to replace existing mirrors
- Covers existing damage and corrosion

Uses

- Restroom mirrors
- Makes any smooth surface a mirror
- Printable advertising media
- High polished stainless steel coverage

Industries

- Public transit
- Malls
- Hospitals
- Restaurants
- Federal buildings
- Commercial properties (Class A & B)
- Schools
- Universities
- Bars
- Fueling stations
- Movie Theaters
- Amusement parks
- Stadiums and convention centers

Printable Material for UV Printers

Specifications

Thickness	.005 (5-Mil)
Liner Thickness	.003 (3-Mil)
Scratch Resistant	Yes
Acid Resistant	Yes
ASTM E84-16	Class A
ASTM E-162-16	Pass
ASTM E-662=17	Pass
VOC Emission	Pass
ANSI Z97.1	Pass
CPSC 16 CFR1201 Cat I	Pass



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714-575-1100 www.Graffiti-Shield.com

SECTION 08800

WINDOW FILM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Anti-graffiti window films for mirrors and glazing systems.

1.2 RELATED SECTIONS

- A. Section 08300 – Mirrors; mirrors for architectural application to receive window film.
- B. Section 08500 - Windows; windows to receive architectural window film.
- C. Section 08600 - Skylights; glass skylights to receive architectural window film.
- D. Section 08800 - Glazing; general glazing applications to receive architectural window film.
- E. Section 08900 - Glazed Curtain Walls; curtain walls to receive architectural window film.

1.3 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
 - 2. ANSI Z26.1 – Safety Glazing Materials
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM D 882 - Tensile Properties of Thin Plastic Sheeting.
 - 2. ASTM D 3330 - Peel-Adhesion at 180 Degree Angle.
 - 3. ASTM E 84-16 - Surface Burning Characteristics of Building Materials.
 - 4. ASTM E 162-16 – Flame Spread
 - 5. ASTM E 662-17 – Smoke Generation
 - 6. ASTM D 532-14 – Standard Test Method For Specular Gloss
- C. Consumer Product Safety Commission
 - 1. CPSC 16 CFR 1201



SECTION 08800

WINDOW FILM

1.4 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E 84-16:
 - 1. Flame Spread: 25, maximum.
 - 2. Smoke Developed: 450, maximum.
 - 3. Must meet Class A Interior Wall and Ceiling Finish
- B. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, a gloss factor less than 0.6% at 20 degrees and 60 degrees per ANSI Z26.1 Test 17 and ASTM D 523.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Selection Samples: For each film specified, submit film samples representing manufacturer's film type for the project.
- D. Verification Samples: For each film specified, two samples representing film color and pattern.
- E. Performance Submittals: Provide laboratory data of emissivity and calculated window U-Factors for various outdoor temperatures based upon established calculation procedure defined by the ASHRAE Handbook of Fundamentals, Chapter 29, or Lawrence Berkeley Laboratory Window 5.2 Computer Program.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years' industry experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
 - 1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
 - 2. Provide proof of ability to purchase material through authorized distributor or manufacture.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.
- C. Please recycle materials to reduce carbon footprint.



SECTION 08800

WINDOW FILM

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Anti-graffiti films are warranted for a period of 12 month when installed indoors.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
Graffiti Shield, Inc.
2940 E. La Palma Ave Suite D
Anaheim, CA 92806
(714) 575-1100
sales@graffiti-shield.com
www.graffiti-shield.com

- B. Acceptable Distributor/Installer:

- C. Requests for substitutions will be considered in accordance with provisions of Section 1.6.

2.2 ANTI-GRAFFITI WINDOW FILM

- A. Anti-Graffiti Window Film: Mirror Shield 5-Mil Anti-Graffiti Film. Mirror Finished polyester film that mimics a mirror when installed with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive over the other. The film may be laminated to other clear polyester film layers to achieve the desired thickness of the film.
 - 1. Physical / Mechanical Performance Properties:
 - a. Film Color: Reflective/Mirrored.
 - b. Thickness: Nominal 5.0 mils (0.005 in).
 - c. Tensile Strength (ASTM D 882):28,000-30,000 lbs/psi.
 - d. Break Strength (ASTM D 882) (Per Inch Width): 190 lbs.
 - e. Elongation at Break (ASTM D 882): >100 percent.
 - f. Peel Strength: 1,000 g/inch. ASTM D 3330)
 - g. Abrasion Resistance (ASTM D 523): ANSI Z26.1 Test 17 with a gloss factor less than 0.6% at 20 degrees and 60 degrees
 - h. Safety Glazing Materials Performance Characteristics (ANSI Z26.1)
Pass The Following Tests:
 - 1. Light stability test 1
 - 2. Luminous transmission test 2
 - 3. Abrasion test 17
 - 4. Chemical resistance test 19
 - 5. Temperature change test 28
 - i. Impact (ANSI Z97.1 and CPSC CFR 1201)
 - 1. Meet requirements of CPSC, Category I, ANSI Class B
 - j. Surface Burn Radiant Heat Source (ASTM E 162-16)
 - 1. Radiant panel index of 0 (zero)



SECTION 08800

WINDOW FILM

2. Smoke develop index = 110
- I. Optical Density of Smoke (ASTM E 662-17)
 1. Ds = 0 @ 1.5 min
 2. Ds = 0 @ 4 min
 3. Ds Max < 3 Radiant Source
 4. Ds Max < 74 Pilot Flame
2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
4. Identification: Labeled as to Manufacturer as listed in this Section.
5. Solar Performance Properties: Film applied to 1/4 Inch (6.4 mm) thick clear glass.
 - a. Visible Light Transmission (ASTM E 903): 0 percent.
 - b. Total Solar Reflection (ASTM E 903): 89 percent.
 - c. Ultraviolet Transmission (ASTM E 903): Less than 1 percent.
 - d. Total Solar Energy Rejection: 95.7 percent
6. Acid Resistant Top Coat. Must have an acid resistant top coat that does not mar during a vandal attack when acid etching agents are used. Acid agent must wipe off clean and leave no residue in top coat.

PART 3 EXECUTION

3.1 EXAMINATION

- A. If preparation of glass surfaces is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
 1. Glass surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance:
- B. Do not proceed with installation until glass surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
- C. Commencement of installation constitutes acceptance of conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Tools needed: Spray bottle/tank, Film On slip solution, squeegee/s, snap off blade knife, plastic hard card, lint free towels, SS scraper or nonabrasive scrub pad.
- C. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant. Use new snap off blades as needed.
- D. Remove film and clean glass surface with slip solution (slip solution is composed of 3/4 oz (4 pumps) of Film On per quart of filtered water) and nonabrasive scrub pad or SS scraper to remove all debris from surface. Clean all edges of frames to clear them of any additional debris.



SECTION 08800

WINDOW FILM

- D. Apply film to glass and position correctly, then lightly spray film with slip solution.
- E. Squeegee the top section from middle to the left, then to the right. Next squeegee down center from top to bottom. Then from center to the left with overlapping passes towards the bottom, then from the center to the right with overlapping passes towards the bottom. Spray slip solution to film and repeat squeegee pattern a second time.
- G. Wrap lint free towel around plastic hard card and press any additional water out around all edges. Once done, inspect entire surface for any left over water and remove.
- H. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.

3.4 CLEANING AND PROTECTION

- A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION

CUSTOM SHIELD

BY GRAFFITI SHIELD, INC.

Graffiti Shield offers a full line of custom products and has the ability to produce unique custom products for almost any substrate. These patent pending films are designed to mimic a surface's appearance while providing the benefits of a surface protection film. Custom Shield is made in small and large batches to fit your unique needs.

Surfaces protected by Custom Shield products include:

- Metal Cladded Buildings
- Powder Coated Surfaces
- Window Frames
- Train Interiors
- Bus Interiors
- Fuel Pumps
- Elevator Cabs and Doors
- Custom Substrates
- Advertising, messaging & decorative

Finishing Options:

- CNC Pre-Cuts
- Custom Part Numbers for Easy Re-orders
- Radius Corners & Custom Printed Graphic





Brown Metallic
03-004-01001



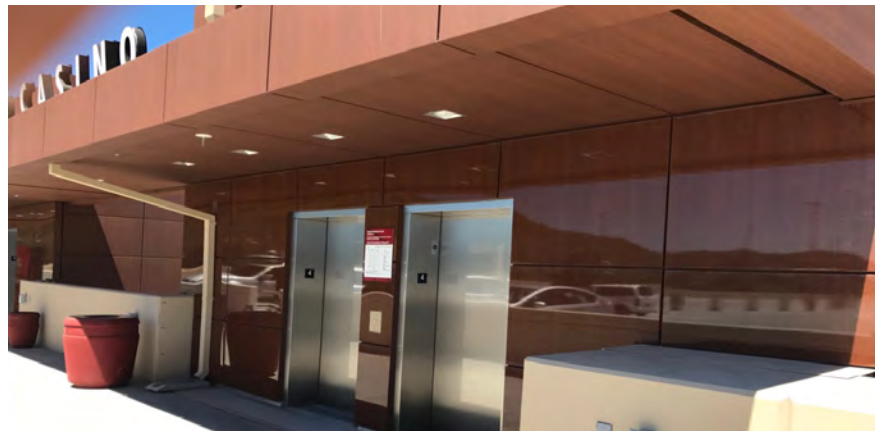
Arctic Gray
03-005-01002



Gun Metal Gray
03-013-01005



Custom Shield Clear
03-011-01010 and 03-011-01011





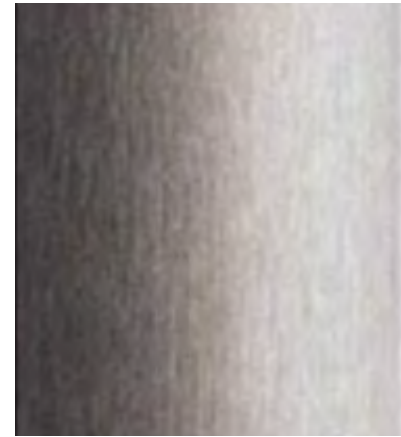
Light Gray
03-011-01003



Steel
01-007-01003



Aluminum
01-010-01006



Titanium
01-009-01005



Black
01-006-01002



Bronze
01-008-01004



Gold
03-012-01004