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Welcome, Lu Anne Cottrill

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Solicitation Response(SR) Dept: 0803 ID: ESR0315170000004387 Ver.: 1 Function: New Phase: Final Modified by batch , 03/16/2017

Header 13

List View

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Procurement Folder: 292140

SO Doc Code: CRFQ

Procurement Type: Central Master Agreement

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Legal Name: 3M TCM

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Close Date: 3/16/17

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Solicitation Description: REFLECTIVE SIGN SHEETING & ASSOCIATED MATERIALS

Total of Header Attachments: 13

Total of All Attachments: 13



Purchasing Division
2019 Washington Street East
Post Office Box 50130
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State of West Virginia
Solicitation Response

Proc Folder : 292140

Solicitation Description : REFLECTIVE SIGN SHEETING & ASSOCIATED MATERIALS

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Date issued	Solicitation Closes	Solicitation Response	Version
	2017-03-16 13:30:00	SR 0803 ESR03151700000004387	1

VENDOR

000000184021

3M TCM

Solicitation Number: CRFQ 0803 DOT17000000058

Total Bid : \$0.00

Response Date: 2017-03-16

Response Time: 10:58:34

Comments:

FOR INFORMATION CONTACT THE BUYER

Mark A Atkins
(304) 558-2307
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Signature on File

FEIN #

DATE

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Pricing shall be completed on Exhibit_A Pricing Page.	0.00000	EA	\$1.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
55121734			

Extended Description :	Note: Vendor shall use Exhibit_A Pricing Page(s) for bid pricing. If bidding online vendor must attach the pricing page and information attachment to their bid. See Section 18 of Instructions to Bidders for additional information.
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3M

Diamond Grade™

DG³ Reflective Sheeting Series 4000

Product Bulletin 4000

January 2012

Description

3M™ Diamond Grade™ DG³ Reflective Sheeting Series 4000 is a super-high efficiency, full cube retroreflective sheeting designed for the production of traffic control signs and delineators that are exposed vertically in service. DG³ sheeting is designed to have the highest retroreflective characteristics at medium and short road distances as determined by the R_A values at 0.5° and 1.0° observation angles in Table B. Performance at these observation angles represents the most common nighttime viewing geometries encountered by the driving public. During the daytime, Diamond Grade DG³ fluorescent reflective sheeting provides higher visibility than ordinary (non-fluorescent) colored sheetings.

Applied to properly prepared sign substrates Diamond Grade DG³ reflective sheeting provides long-term retroreflectivity and durability. Series 4000 sheeting is available in the following colors.

Color	Product Code
White.	4090
Yellow.	4091
Red.	4092
Blue.	4095
Green.	4097
Brown.	4099
Fluorescent Yellow - FY.	4081
Fluorescent Yellow Green- FYG.	4083
Fluorescent Orange - FO.	4084

Color

Product Code

White - thermal transfer printable 4090TT
 Yellow - thermal transfer printable 4091TT
 Fluorescent Yellow - TT printable 4081TT
 Fluorescent Yellow - Green - TT printable . . . 4083TT

Photometrics

Daytime Color (x, y, Y)

The chromaticity coordinates and total luminance factor of the retroreflective sheeting conform to Table A.

Color Test – Fluorescent Sheetings

Conformance to standard chromaticity (x, y) and luminance factor (Y %) requirements shall be determined by instrumental method in accordance with ASTM E 991 on sheeting applied to smooth aluminum test panels cut from Alloy 6061-T6 or 5052-H38. The values shall be determined on a HunterLab ColorFlex 45/0 spectrophotometer. Computations shall be done for CIE Illuminant D65 and the 2° standard observer.²

Color Test – Ordinary Colored Sheeting

Conformance to standard chromaticity (x, y) and luminance factor (Y %) requirements shall be determined by instrumental method in accordance with ASTM E 1164 on sheeting applied to smooth aluminum test panels cut from Alloy 6061-T6 or 5052-H38. The values shall be determined on a HunterLab ColorFlex 45/0 spectrophotometer. Computations shall be done for CIE Illuminant D65 and the 2° standard observer.²

Table A - Daytime Color Specification Limits¹

Color	x y		x y		x y		x y		Daytime Luminance Limit (Y%)	
	x	y	x	y	x	y	x	y	Min.	Max.
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	27	
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	15	45
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	15
Blue	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1	10
Green	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	3	12
Brown	0.430	0.340	0.610	0.390	0.550	0.450	0.430	0.390	1	9
FY	0.479	0.520	0.446	0.483	0.512	0.421	0.557	0.442	40	
FYG	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60	
FO	0.583	0.416	0.535	0.400	0.595	0.351	0.645	0.355	20	

¹The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Colorimetric System.

²The instrumentally determined color values of retroreflective sheeting can vary significantly depending on the make and model of colorimetric spectrophotometer as well as the color and retroreflective optics of the sheeting (David M. Burns and Timothy J. Donahue, Measurement Issues in the Color Specification of Fluorescent Retroreflective Materials for High Visibility Traffic Signing and Personal Safety Applications, Proceedings of SPIE: Fourth Oxford Conference on Spectroscopy, 4826, pp. 39-49, 2003). For the purposes of this document, the HunterLab ColorFlex 45/0 spectrophotometer shall be the referee instrument.

Coefficients of Retroreflection (R_A)

The values in Table B are minimum coefficients of retroreflection expressed in candelas per lux per square meter (cd/lux/m²).

Test for Coefficients of Retroreflection

Conformance to coefficient of retroreflection requirements shall be determined by instrumental method in accordance with ASTM E-810 "Test Method for Coefficient of Retroreflection of Retroreflective Sheeting", and per E-810 the values of 0° and 90° rotation are averaged to determine the R_A in Table B.

Table B - Minimum Coefficient of Retroreflection R_A for new sheeting (cd/lux/m²)

-4° Entrance Angle³		Observation Angle⁴		
	0.2°	0.5°	1.0°	
White	580	420	120	
Yellow	435	315	90	
Red	87	63	18	
Green	58	42	12	
Blue	26	19	5	
Brown	17	13	4	
Fluorescent Yellow	350	250	72	
Fluorescent Yellow Green	460	340	96	
Fluorescent Orange	175	125	36	
30° Entrance Angle³		0.2°	0.5°	1.0°
White	220	150	45	
Yellow	165	110	34	
Red	33	23	7	
Green	22	15	5	
Blue	10	7	2	
Brown	7	5	1	
Fluorescent Yellow	130	90	27	
Fluorescent Yellow Green	180	120	36	
Fluorescent Orange	66	45	14	

³ Entrance Angle – The angle from the illumination axis to the retroreflector axis. The retroreflector axis is an axis perpendicular to the retroreflective surface.

⁴ Observation Angle – The angle between the illumination axis and the observation axis.

Printed Colors and Overlay Films

For screenprinted or thermally transfer printed transparent color areas on white sheeting when processed according to 3M recommendations, the coefficients of retroreflection shall not be less than 70% of the value for the corresponding color in Table B. For white sheeting covered with 3M™ ElectroCut™ Film Series 1170 when processed according to 3M recommendations, the coefficients of retroreflection shall not be less than 100% of the value for the corresponding color in Table B. The color chromaticity and luminance shall conform to Table A on page 1.

Entrance Angularity Performance in Regard to Orientation

Diamond Grade DG³ Reflective Sheeting is designed to be an effective wide angle reflective sheeting regardless of its orientation on the substrate or ultimate orientation of the sign after installation. However, because the efficiency of light return from cube corner reflectors is not equal at all application orientations, especially with increasing entrance angles, it is possible to get the widest entrance angle light return when the sheeting is oriented in a particular manner. When high entrance angle (>50°) performance is required for given signs (e.g. Keep Right Symbols), it can be obtained easily by specifying the application orientation of the completed signs. In these situations the completed sign should have the sheeting positioned at the 0° orientation (downweb direction perpendicular to the road).

When the "primary groove line" (or, flat side of the diamond shape) is vertical in the completed sign, sheeting is said to be at a 0° orientation. When the "primary groove line" (or, flat side of the diamond shape) is horizontal in the completed sign, the sheeting is said to be at a 90° orientation. (Figure 1)

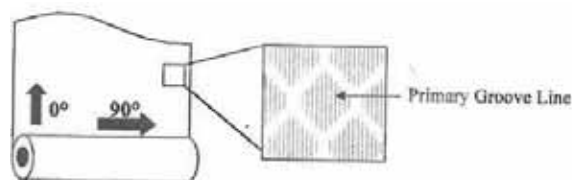


Figure 1

Unless the sign location and/or position calls for extra-wide entrance angularity performance, signs and applied copy (letters, arrows, borders and shields) can be fabricated and installed using the application orientation that most efficiently utilizes the reflective sheeting.

Note: For multi-panel signs it is recommended that all background panels be sheeted such that the sheeting direction is the same for all panels.

Fabrication Lines

The manufacture of prismatic sheeting results in lines being present in the product. In Diamond Grade DG³ sheeting these lines are slightly thicker than the seal pattern legs. Fabrication lines are noticeable in shop light but are not observable on the road either in daylight or at night under typical use conditions (Figure 2).

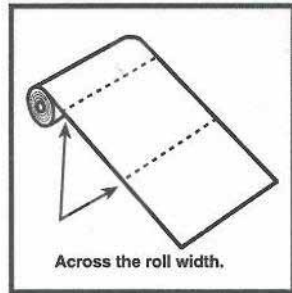


Figure 2 - Fabrication Lines

Adhesive

Diamond Grade DG³ sheeting has a pressure-sensitive adhesive that is recommended for application at temperatures of 65°F (18°C) or higher.

Adhesive and Film Properties

Standard Test Panels

Unless otherwise specified herein, sheeting shall be applied to test panels and conditioned in accordance with ASTM D4956 and test methods and conditions shall conform to ASTM D4956.

Properties

The following properties shall conform to the requirements in ASTM D4956.

1. Adhesion
2. Outdoor weathering
 - retained coefficient of retroreflection
 - colorfastness
3. Shrinkage
4. Flexibility
5. Liner removal
6. Impact resistance
7. Night time color

In addition, DG³ sheeting will conform to the following properties.

1. Gloss

Test Method – Test in accordance with ASTM D523 using a 60° glossmeter.

Requirement – Rating not less than 50.

2. Optical Stability

Test Method – Apply a 3-inch x 6-inch sample to a test panel. Measure R_A then place it in an oven at $71^\circ\text{C} \pm 3^\circ\text{C}$ ($160^\circ\text{F} \pm 5^\circ\text{F}$) for 24 hours followed by conditioning at standard conditions for two hours.

Remeasure R_A .

Requirement – The sheeting shall retain a minimum of 85% and a maximum of 115% of the original coefficient of retroreflection.

Sign Fabrication Methods

Application

Diamond Grade DG³ sheeting incorporates a pressure sensitive adhesive and should be applied to the sign substrate at temperature of 65°F/18°C or higher by any of the following methods:

Mechanical squeeze roll applicator – refer to 3M Information Folder (IF) 1.4. Application to extrusions that are edge wrapped requires sufficient softening of the sheeting. This can be accomplished by directing additional heat to the “next to last” edge roller. This practice will increase productivity and minimize cracking.

Hand squeeze roll applicator – refer to 3M IF 1.6.

Application of Diamond Grade DG³ sheeting for complete signs or backgrounds must be done with a roll laminator, either mechanical or hand driven.

Hand Application

Hand application is recommended for legend and copy only. Refer to 3M Information Folder 1.5 for more details.

Hand applications will show some visual irregularities, which are objectionable to aesthetically critical customers. These are more noticeable on darker colors. To obtain a close-up uniform appearance, a roll laminator must be used.

All direct applied copy and border MUST be cut at all metal joints and squeegeed at the joints.

Splices

Series 4000 sheeting must be butt spliced when more than one piece of sheeting is used on one piece of substrate. The sheeting pieces should not touch each other. This is to prevent buckling as the sheeting expands in extreme temperature and humidity exposure.

Double Faced Signs

The sheeting on the bottom side of a double faced sign can be damaged if rolled through a squeeze roll applicator with an unprotected steel bottom roller. The use of a semi-soft flat sheet between the steel roller and the applied sign face will provide protection from damage. A material such as a rubber mat, tag board or cardboard is recommended.

Substrates

For traffic sign use, substrates found to be most reliable and durable are properly prepared aluminum sheets and extrusions. **Users are urged to carefully evaluate all other substrates for adhesion and sign durability.** Other substrates that may be satisfactory for proper application of sheeting will have the following characteristics:

- Clean
- Smooth
- Flat
- Rigid
- Dimensionally stable
- Weather resistant
- Non-porous
- High surface energy (passes water break test)

Refer to Information Folder 1.7 for surface preparation recommendations. Substrates with low surface energy may require additional preparation such as flame treatment, mechanical abrasion or use of adhesion promoters prior to sheeting application. Guide sign extrusions may be edge wrapped. Flat panels or unwrapped extrusions are to be carefully trimmed so that sheeting from adjacent panels does not touch on assembled signs.

Diamond Grade DG³ sheeting is designed primarily for applications to flat substrates. Any use that requires a radius of curvature of less than five inches should also be supported by rivets or bolts. Plastic substrates are not recommended where cold shock performance is required. **Sign failures caused by the substrate or improper surface preparation are not the responsibility of 3M.**

Imaging

Diamond Grade DG³ sheeting may be processed into traffic signs by any of the imaging methods described below. 3M assumes no responsibility for failure of sign face legends or backgrounds that have been processed with non-3M process colors or matched component imaging materials other than those listed below.

Screen Processing

Diamond Grade DG³ sheeting may be screen processed into traffic signs before or after mounting on a sign substrate, using 3M Process Colors Series 880I or Series 880N. Series 880I or 880N process colors can be screened at 60-100°F (16-38°C) at relative humidity of 20-50%. A PE 157 screen mesh with a fill pass is recommended. Refer to Information Folder 1.8 for details. No clear coating is required or recommended. Use of other process colors series is not recommended.

Care should be taken to avoid flexing DG³ sheeting before and especially after screening to eliminate the possibility of cracking from improper handling techniques.

Thermal Transfer Printing

Diamond Grade DG³ TT sheeting may be imaged with 3M™ Thermal Transfer Ribbon Series TTR2300 in conjunction with the Matan SprinG3 or Matan Spot4 thermal transfer printers. For regulated traffic signs, Series TTR2300 Spot Traffic Colors are to be applied using these printers and must be covered with 3M™ ElectroCut™ Film 1170. Refer to Product Bulletin TTR2300 for more information.

3M™ ElectroCut™ Film

3M™ ElectroCut™ Film Series 1170 may be used to provide transparent colored background copy for traffic control signs on Diamond Grade DG³ sheeting. Refer to Product Bulletin 1170 for fabrication procedures.

Applied Cut-Out Copy

Diamond Grade DG³ cut letters may be applied to a DG³ sheeting background to create a sign legend. Such cut-out copy may be directly applied to the background sheeting, or may be applied in a demountable form. Direct applied copy must be cut at all panel seams and carefully trimmed back so that sheeting from adjacent panels does not touch on assembled signs. Refer to Information Folder 1.10 for more information.

Note: It is recommended to fabricate all but the largest signs using 1170 electronic cuttable overlay film instead of direct applied copy.

Cutting

Diamond Grade DG³ sheeting may be cut into letters and shapes of at least three inches in height and stroke widths of at least one half inch. Smaller sizes are not recommended. Sealing cut edges of DG³ sheeting is not required.

Plotter Cutting

Programmable knife cut (electronic cutting)

1. Flat bed plotters can either die cut or kiss cut and offer the most consistent and reliable performance.
2. Friction Fed plotter. Kiss cut only. Success has been achieved using plotters that have 600 grams of down force and a 60° cutting blade. Additional drive wheels may need to be added to improve tracking. An alternative procedure is to cut sheeting from the liner side. Blade force and knife depth must be set to score but not cut through the topfilm. Break apart individual copy or apply premask to retain spacing.

Other Cutting Methods

Diamond Grade DG³ sheeting may be hand cut or die cut one sheet at a time, and band sawed or guillotined in stacks. Cutting equipment such as guillotines and metal shears, which have pressure plates on the sheeting when cutting, may damage the optics. Padding the pressure plate and easing it down onto the sheets being cut will significantly reduce damage. Maximum stack height for cutting Series 4000 sheeting is 1½ inch or 50 sheets. Details on cutting can be found in Information Folder 1.10.

Storage and Packaging

3M Diamond Grade DG³ Sheeting should be stored in a cool, dry area, preferably at 65-75°F (18-24°C) and 30-50% relative humidity and should be applied within one year of purchase. Rolls should be stored horizontally in the shipping carton. Partially used rolls should be returned to the shipping carton or suspended horizontally from a rod or pipe through the core. Unprocessed sheets should be stored flat. Finished signs and applied blanks should be stored on edge.

Screen processed signs must be protected with SCW 568 slipsheet paper. Place the glossy side of the slipsheet against the sign face and pad the face with closed cell packaging foam. Double faced signs must have the glossy side of the slipsheet against each face of the sign.

Unmounted screened faces must be stored flat and interleaved with SCW 568 slipsheet, glossy side against the sign face.

Avoid banding, crating, or stacking signs. Package for shipment in accordance with commercially accepted standards to prevent movement and chafing. Store sign packages indoors on edges.

Panels or finished signs must remain dry during shipment and storage. If packaged signs become wet, unpack immediately and allow signs to dry. Refer to Information Folder 1.11 for instructions on packing for storage and shipment.

Installation

Nylon washers are required when twist style fasteners are used to mount the sign.

Cleaning

Signs that require cleaning should be flushed with water, then washed with a detergent solution and soft bristle brush or sponge. Avoid pressure that may damage the sign face. Flush with water following washing. Do not use solvents to clean signs. Refer to 3M Information Folder 1.10.

Health and Safety Information

Read all health hazard, precautionary and first aid statements found in the Material Safety Data Sheet and/or product label of any materials prior to handling or use.

General Performance Considerations

The durability of Diamond Grade DG³ sheeting and finished signs using 3M Matched Component materials will depend upon substrate selection and preparation, compliance with recommended application procedures, geographic area, exposure conditions, and maintenance. Maximum durability of Diamond Grade DG³ sheeting can be expected in applications subject to vertical exposure on stationary objects when processed and applied to properly prepared aluminum according to 3M recommendations provided in Information Folder 1.7. The user must determine the suitability of any nonmetallic sign backing for its intended use. **Sign failures caused by the substrate or improper surface preparation are not the responsibility of 3M.** Applications to unprimed, excessively rough or non-weather resistant surfaces or exposure to severe or unusual conditions can shorten the performance of such applications. Signs in mountainous areas that are covered by snow for prolonged periods may also have reduced durability. 3M process colors and ElectroCut™ Film, when used according to 3M recommendations, are generally expected to provide performance comparable to colored reflective sheeting. Custom colors, certain lighter colors, heavily toned colors or blends containing yellow or gold may have reduced durability. Atmospheric conditions in certain geographic areas may result in reduced durability.

Periodic sign inspection and regular sign replacement are strongly recommended in order for sign owners to establish their own effective service life expectation, beyond the warranty period.

3M Basic Product Warranty and Limited Remedy

3M™ Diamond Grade™ DG³ Reflective Sheeting Series 4000 (“Product”) is warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin. If DG³ Sheeting is proven not to have met the Basic Warranty on its shipment date, then a buyer’s exclusive remedy, and 3M’s sole obligation, at 3M’s option, will be refund or replacement of the sheeting.

General Warranty Terms:

1. 3M makes the Additional Warranty (as defined below) as to any traffic control and guidance sign in the United States and Canada (“Sign”) made with 3M™ Diamond Grade™ DG³ Reflective Sheeting Series 4000 (“Product”) and the Matched Component materials listed in Table E. Any Additional Warranty is contingent on all components involved in that Additional Warranty being stored, applied, installed, and used only as 3M recommends in its Product Bulletins and Other Product Information.

2. The Basic Warranty and any applicable Additional Warranty are collectively referred to as the “3M Warranty.” EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, THE 3M WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, RIGHTS OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND THOSE ARISING FROM A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. A BUYER IS RESPONSIBLE FOR DETERMINING IF A PRODUCT IS SUITABLE FOR ITS PARTICULAR PURPOSE AND APPLICATION METHODS.

3. A Sign’s failure to meet the 3M Warranty must be solely the result of the Product or the matched component materials’ design or manufacturing defects. 3M has no obligation under the 3M Warranty if a sign failure is caused by:

improper fabrication, handling, maintenance or installation; non-vertical applications where the Sign face is more than +/- 10% from vertical; use of any material or product not made by 3M or not included in Table E; use of application equipment not recommended by 3M; failure of sign substrate; loss of adhesion due to incompatible or improperly prepared substrate; exposure to chemicals, abrasion and other mechanical damage; snow burial or any other sign burial; collisions, vandalism or malicious mischief.

4. 3M reserves the right to determine the method of replacement, and any replacement Product will have the remainder of the original Product’s unexpired 3M Warranty. Claims made under this warranty will be honored only if

- The Sign was dated upon completion of fabrication (“Fabrication Date”) using a permanent method (sticker, permanent marker or crayon, metal stamp, etc.)
- 3M is notified of a 3M Warranty claim during any applicable Warranty Period and the owner or fabricator provides the information reasonably required by 3M to verify if a 3M Warranty is applicable.

Additional Warranty & Limited Remedy for Ordinary colored Product

1. The Additional Warranty for a Sign made with ordinary colored Product is that the Sign will: (a) **remain effective for its intended use when viewed from a moving vehicle under normal day and night driving conditions by a driver with normal vision**, and (b) after cleaning, will meet the **minimum values for coefficient of retroreflection stated in Table C** for Table C’s applicable Warranty Period measured from the Sign’s Fabrication Date.

Table C – Minimum Percent Retained of Table B Initial R_A for applicable Warranty Period for Ordinary Colors (white, yellow, red, green, blue and brown)

Warranty Period	Minimum Percentage R _A Retained
1-7 Years	80%
8-12 Years	70%

2. If any Sign made with Ordinary Product is proven not to have met the Additional Warranty, then a buyer’s **exclusive remedy**, and 3M’s sole obligation, at 3M’s option:

- (a) if this occurs within seven years after the Fabrication Date, then 3M will, at its expense, restore the Sign’s surface to its **original effectiveness**; or
- (b) if this occurs during the remainder of the Additional Warranty Period, then 3M will furnish only the necessary 3M sheeting Product and matched component materials quantity to restore the Sign’s surface to its original effectiveness.

Additional Warranty & Limited Remedy for Fluorescent Product

1. The Additional Warranty for a Sign made with Fluorescent Product is that the Sign will: (a) **remain effective for its intended use when viewed from a moving vehicle under normal day and night driving conditions by a driver with normal vision**; (b) after cleaning, will **retain 70% of the minimum values for coefficient of retroreflection stated in Table B** for the applicable Warranty Period stated in Table D, measured from Fabrication Date; and (c) after cleaning, the fluorescent Product will **maintain daytime luminance equal to or greater than the minimums specified in Table A**.

Table D – Warranty Period for Fluorescent Colors.

Color	Warranty Period
Fluorescent Yellow	10/7 Years ⁵
Fluorescent Yellow Green	10/7 Years ⁵
Fluorescent Orange	3 Years

⁵ Due to climatic conditions, Signs in Alabama, Arizona, Florida, Georgia, Hawaii, Louisiana, Mississippi, New Mexico, South Carolina and Texas have the 7-year Additional Warranty Period.

2. If a Sign made with Fluorescent Product is proven not to have met the Additional Warranty, then a buyer's exclusive remedy, and 3M's sole obligation, at 3M's option:

(a) for those Fluorescent Products with a 10-year Additional Warranty Period, 3M will, at its expense: (a) restore the Sign's surface to its **original effectiveness** if this occurs within seven years after the Fabrication Date; or (b) furnish only the necessary 3M Fluorescent Product and matched component materials quantity to restore the Sign's surface to its original effectiveness if this occurs during the remainder of the Warranty Period.

(b) for those Fluorescent Products with a 7-year Additional Warranty Period, 3M will, at its expense: (a) restore the Sign's surface to its **original effectiveness** if this occurs within five years after the Fabrication Date; or (b) furnish only the necessary 3M Fluorescent Product and matched component materials quantity to restore the Sign's surface to its original effectiveness if this occurs during the remainder of the Warranty Period.

(c) for those Fluorescent Products with a 3-year Additional Warranty Period, 3M will furnish only the necessary Fluorescent Product and matched component materials quantity to restore the Sign's surface to its original effectiveness.

Table E. Matched Component Materials.

Matched Components	
Process Colors	Series 880I
Process Colors	Series 880N
Thermal Transfer Ribbons – Spot Traffic Colors only*	Series TTR2300
ElectroCut™ Film	Series 1170
Premium Protective Overlay Film	Series 1160
Slipsheet	SCW 568
Prespacing Tape	SCPS-2
Premasking Tape	SCPM-3
Transfer Tape	TPM-5

* Must be covered with 3M™ ElectroCut™ Film 1170

Refer to 3M Information Folders and Product Bulletins for detailed information about recommended application procedures and equipment.

Other Product Information

Always confirm that you have the most current version of the applicable Product Bulletin, Information Folder or Other Product Information.

IF 1.4	Instructions for Interstate Squeeze Roll Applicator
IF 1.5	Hand Application Instructions
IF 1.6	Hand Squeeze Roll Applicator
IF 1.7	Sign Base Surface Preparation
IF 1.8	Process Color Application Instructions
IF 1.10	Cutting, Premasking, and Prespacing
IF 1.11	Sign Maintenance Management
PB 880I	Process Color 880I
PB 880N	Process Color 880N
PB 1170	ElectroCut™ Film
PB TTR2300	Thermal Transfer Ribbons Series TTR2300
PB 1160	Protective Overlay Film 1160

Limitation of Liability

3M WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO A BUYER FOR DIRECT (other than the applicable Limited Remedy stated above), SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS) IN ANY WAY RELATED TO A PRODUCT OR THIS PRODUCT BULLETIN, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY ON WHICH SUCH DAMAGES ARE SOUGHT.

ASTM Test Methods are available from ASTM International, West Conshohocken, PA.

3M assumes no responsibility for any injury, loss or damage arising out of the use of a product that is not of our manufacture. Where reference is made in literature to a commercially available product, made by another manufacturer, it shall be the user's responsibility to ascertain the precautionary measures for its use outlined by the manufacturer.

Important Notice

All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, or conditions express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct, special or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith. Statements or recommendations not contained herein shall have no force or effect unless in an agreement signed by officers of seller and manufacturer.

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Engineer Grade Prismatic Reflective Sheeting

Series 3430 with Pressure Sensitive Adhesive

Product Bulletin 3430-U.S.

October 2013

Replaces Product Bulletin 3430 dated July 2009

Description

3M™ Engineer Grade Prismatic Reflective Sheeting Series 3430 is a non-metalized microprismatic lens retroreflective sheeting designed for production of reflective commercial signs and noncritical traffic control signs that are exposed vertically in service. Series 3430 sheeting can easily be identified by the visible integral “EGP” marking. When applied to properly prepared sign substrates, Series 3430 sheeting provides long-term reflectivity and durability. Series 3430 sheeting is available in the following colors.

Color	Product Code
White	3430
Yellow	3431
Red	3432
Blue	3435
Green	3437
Brown	3439

Sign Fabrication Methods

Application

Series 3430 sheeting incorporates a pressure sensitive adhesive and should be applied to the sign substrate at temperature of 65°F/18°C or higher by any of the following methods:

Mechanical squeeze roll applicator – Reference Information Folder 1.4.

Hand squeeze roll applicator — Reference Information Folder 1.6.

Hand application is recommended for copy only. See Information Folder 1.5.

All direct applied copy and border MUST be cut at all panel seams and squeegeed at the joint.

Splices

Series 3430 sheeting must be butt spliced when more than one piece of sheeting is used on one piece of substrate. The sheeting pieces should not touch each other. This is to prevent buckling as the sheeting expands when subject to extreme temperature and/or high humidity levels.

Double Faced Signs

The sheeting on the bottom side of a double faced sign can be damaged if rolled through a squeeze roll applicator with an unprotected steel bottom roller. The use of a semi-soft flat sheet between the steel roller and the applied sign face will provide protection from damage. A material such as a rubber mat, tag board or cardboard is recommended.

Substrates	<p>For traffic sign use, substrates found to be most reliable and durable are properly prepared aluminum sheets and extrusions. Users are urged to carefully evaluate all other substrates for adhesion and sign durability. Other substrates that may be satisfactory for proper application of sheeting will have the following characteristics:</p> <ul style="list-style-type: none"> • Clean • Smooth • Flat • Rigid • Dimensionally stable • Weather resistant • Non-porous • High surface energy (passes water break test) <p>Refer to Information Folder 1.7 for surface preparation recommendations. Substrates with low surface energy may require additional preparation such as flame treatment, mechanical abrasion or use of adhesion promoters prior to sheeting application.</p> <p>Engineer grade prismatic sheeting is designed primarily for applications to flat substrates. Any use that requires a radius of curvature of less than five inches should also be supported by rivets or bolts. Plastic substrates are not recommended where cold shock performance is required. Sign failures caused by the substrate or improper surface preparation are not the responsibility of 3M.</p>
Screen Processing	<p>Engineer grade prismatic sheeting may be screen processed into traffic signs before or after mounting on a sign substrate, using 3M™ Process Colors Series 880I or Series 880N. Series 880I or 880N process colors can be screened at 60–100°F (16–38°C) at relative humidity of 20–50%. A PE 157 screen mesh with a fill pass is recommended. Refer to Information Folder 1.8 for details. Clear coating is not required or recommended. Use of other process colors series is not recommended. Care should be taken to avoid flexing series 3430 sheeting before and especially after screening to eliminate the possibility of cracking from improper handling techniques.</p> <p>For screenprinted areas on white sheeting when processed according to 3M recommendations, the coefficients of retroreflection shall not be less than 70% of the value for the corresponding color in Table A. The color chromaticity and luminance shall conform to Table B.</p>
Cutting and Matching	<p>Engineer grade prismatic sheeting may be cut into letters and shapes of at least three inches in height and stroke widths of at least one half inch. Smaller sizes are not recommended. Sealing cut edges of Series 3430 sheeting is not required.</p> <p>Plotter Cutting Programmable knife cut (electronic cutting)</p> <ol style="list-style-type: none"> 1. Flat bed plotters can either die cut or kiss cut and offer the most consistent and reliable performance. 2. Friction fed plotter. Kiss cut only. Success has been achieved using plotters that have 600 grams of down force and a 60° cutting blade. Additional drive wheels may need to be added to improve tracking. An alternative procedure is to cut sheeting from the liner side. Blade force and knife depth must be set to score but not cut through the topfilm. Break apart individual copy or apply premask to retain spacing. <p>Other Cutting Methods Engineer grade prismatic sheeting may be hand cut or die cut one sheet at a time, and band sawed or guillotined in stacks. Cutting equipment such as guillotines and metal shears, which have pressure plates on the sheeting when cutting, may damage the optics. Padding the pressure plate and easing it down onto the sheets being cut will significantly reduce damage. Maximum stack height for cutting series 3430 sheeting is one and a half inch or 50 sheets. Details on cutting can be found in Information Folder 1.10.</p>

Cleaning	Signs that require cleaning should be flushed with water, then washed with a detergent solution and a soft bristle brush or sponge. Avoid pressure that may damage the sign face. Flush with water following washing. Do not use solvents to clean signs. See Information Folder 1.10.
Storage and Packaging	<p>3M™ Engineer Grade Prismatic Sheeting should be stored in a cool, dry area, preferably at 65–75°F (18–24°C) and 30–50% relative humidity and should be applied within one year of purchase. Rolls should be stored horizontally in the shipping carton. Partially used rolls should be returned to the shipping carton or suspended horizontally from a rod or pipe through the core. Unprocessed sheets should be stored flat. Finished signs and applied blanks should be stored on edge.</p> <p>Screen processed signs must be protected with SCW 568 slipsheet paper. Place the glossy side of the slipsheet against the sign face. Double faced signs must have the glossy side of the slipsheet against each face of the sign.</p> <p>Unmounted screened faces must be stored flat and interleaved with SCW 568 slipsheet, glossy side against the sign face.</p> <p>Avoid banding, crating, or stacking signs. Package for shipment in accordance with commercially accepted standards to prevent movement and chafing. Store sign packages indoors on edges.</p> <p>Panels or finished signs must remain dry during shipment and storage. If packaged signs become wet, unpack immediately and allow signs to dry. Refer to Information Folder 1.11 for instructions on packing for storage and shipment.</p>
Installation	Nylon washers are required when twist style fasteners are used to mount the sign.
Health and Safety Information	Read all health hazard, precautionary and first aid statements found in the Material Safety Data Sheet, and/or product label of chemicals prior to handling or use.
General Performance Considerations	<p>Minimum coefficient of retroreflection, chromaticity limits, and daytime luminance factor (Y%) for the engineer grade prismatic sheeting series 3430 are given in Table A and Table B, respectively.</p> <p>Durability Considerations</p> <p>The durability of 3M™ Engineer Grade Prismatic Sheeting and finished signs using 3M's matched component materials (Table C) will depend upon substrate selection and preparation, compliance with recommended application procedures, geographic area, exposure conditions, and maintenance. Maximum durability of series 3430 can be expected in applications subject to vertical exposure on stationary objects when processed and applied to properly prepared aluminum according to 3M recommendations. Periodic sign inspection and regular sign replacement are strongly recommended in order for sign owners to establish their own effective service life expectation beyond any durability warranty, if provided.</p> <p>Substrate Considerations</p> <p>The user must determine the suitability of any nonmetallic sign backing for its intended use. Substrate manufacturer recommendations for preparation should be followed as well as guidance provided in Information Folder 1.7. Applications to unprimed, excessively rough or non-weather resistant surfaces can shorten the performance of such applications. Sign failures caused by the substrate or improper surface preparation are not the responsibility of 3M.</p> <p>Exposure Considerations</p> <p>Exposure to severe or unusual conditions can shorten the performance of such applications. Signs in mountainous areas that are covered by snow for prolonged periods may also have reduced durability. Atmospheric conditions in certain geographic areas may result in reduced durability.</p> <p>Custom Process Colors Considerations</p> <p>Custom colors, certain lighter colors, heavily toned color or blends containing yellow or gold may have reduced durability.</p>

General Performance Considerations (Continued)

Table A — Minimum Coefficient of Retroreflection
Candelas/Foot Candle/Square Foot
Candelas/Lux/Square Meter

Obs. Angle ¹	Ent. Angle ²	White	Yellow	Red	Green	Blue	Brown
0.2	-4	70	50	14.5	9.0	4.0	2.0
0.2	+30	30	22	6.0	3.5	1.7	1.0
0.5	-4	30	25	7.5	4.5	2.0	1.0
0.5	+30	15	13	3.0	2.2	0.8	0.5

Reflectivity conforms to ASTM D 4956.

¹Observation Angle — The angle between the illumination axis and the observation axis.

²Entrance Angle — The angle from the illumination axis to the retroreflector axis. The retroreflector axis is an axis perpendicular to the retroreflective surface.

Table B — CIE Chromaticity Coordinate Limits

Color	x	y	x	y	x	y	x	y	Reflectance Limit (Y)	
									Min	Max
White	.303	.300	.368	.366	.340	.393	.274	.329	27.0	
Yellow	.498	.412	.557	.442	.479	.520	.438	.472	15.0	45.0
Red	.648	.351	.735	.265	.629	.281	.565	.346	2.5	12.0
Blue	.140	.035	.244	.210	.190	.255	.065	.216	1.0	10.0
Green	.026	.399	.166	.364	.286	.446	.207	.771	3.5	9.0
Brown	.430	.340	.610	.390	.550	.450	.430	.390	4.0	9.0

Table C — Matched Component Materials

Matched Components	
Process Colors	Series 880I
Process Colors	Series 880N
Premium Protective Overlay Film	Series 1160
Slipsheet	SCW 568
Prespacing Tape	SCPS-2
Premasking Tape	SCPM-3
Transfer Tape	TPM-5

3M Basic Warranty and Limited Remedy

3M™ Engineer Grade Prismatic Reflective Sheeting Series 3430 (“Product”) is warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin. If the product is proven not to have met the Basic Warranty on its shipment date, then a buyer’s exclusive remedy, and 3M’s sole obligation, at 3M’s option, will be refund or replacement of the sheeting.

Limitation of Liability and Remedies

3M WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO A BUYER FOR DIRECT (other than the applicable Limited Remedy stated above), SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS) IN ANY WAY RELATED TO A PRODUCT OR THIS PRODUCT BULLETIN, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY ON WHICH SUCH DAMAGES ARE SOUGHT.

Literature Reference	Information Folder 1.4	Instructions for Squeeze Roll Applicator
	Product Bulletin 880I	3M™ Process Color Series 880I
	Product Bulletin 880N	3M™ Process Color Series 880N
	Information Folder 1.5	Hand Application Instructions
	Information Folder 1.6	Instructions for Hand Squeeze Roll Applicator
	Information Folder 1.7	Sign Base Surface Preparation
	Information Folder 1.8	Process Color Instructions
	Information Folder 1.10	Cutting, Matching, Premasking, and Prespacing Instructions
	Information Folder 1.11	Sign Maintenance Management

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3M assumes no responsibility for any injury, loss or damage arising out of the use of a product that is not of our manufacture. Where reference is made in literature to a commercially available product, made by another manufacturer, it shall be the user's responsibility to ascertain the precautionary measures for its use outlined by the manufacturer.

Important Notice

All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, or conditions express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct, special or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith. Statements or recommendations not contained herein shall have no force or effect unless in an agreement signed by officers of seller and manufacturer.

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High Intensity Prismatic Reflective Sheeting Series 3930

Product Bulletin 3930

January 2013

Replaces PB 3930 dated January 2012

Description

3M™ High Intensity Prismatic Reflective Sheeting Series 3930 is a non-metalized microprismatic lens reflective sheeting designed for production of reflective durable traffic control signs, work zone devices and delineators that are exposed vertically in service. Applied to properly prepared sign substrates, 3M high intensity prismatic sheeting provides long-term reflectivity and durability. Series 3930 sheeting is available in the following colors.

Color	Product Code
White	3930
Yellow	3931
Red	3932
Orange	3934
Blue	3935
Green	3937
Brown	3939
Color – TT Series	
White – thermal transfer (TT) printable	3930TT
Yellow – TT printable	3931TT

Photometrics

Daytime Color (x,y,Y)

The chromaticity coordinates and total luminance factor of the retroreflective sheeting conform to Table A.

Color Test – Ordinary Colored Sheeting

Conformance to standard chromaticity (x, y) and luminance factor (Y %) requirements shall be determined by instrumental method in accordance with ASTM E 1164 on sheeting applied to smooth aluminum test panels cut from Alloy 6061-T6 or 5052-H38. The values shall be determined on a HunterLab ColorFlex 45/0 spectrophotometer. Computations shall be done for CIE Illuminant D65 and the 2° standard observer.²

²The instrumentally determined color values of retroreflective sheeting can vary significantly depending on the make and model of colorimetric spectrophotometer as well as the color and retroreflective optics of the sheeting (David M. Burns and Timothy J. Donahue, Measurement Issues in the Color Specification of Fluorescent Retroreflective Materials for High Visibility Traffic Signing and Personal Safety Applications, Proceedings of SPIE: Fourth Oxford Conference on Spectroscopy, 4826, pp. 39-49, 2003). For the purposes of this document, the HunterLab ColorFlex 45/0 spectrophotometer shall be the referee instrument.

Coefficients of Retroreflection (R_A)

The values in Table B are minimum coefficients of retroreflection expressed in candelas per lux per squaremeter (cd/lux/m²).

Table A Daytime color specification limits¹

Color	x		y		x		y		Daytime Luminance Limit	
	x	y	x	y	x	y	x	y	Min.	Max.
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	27	
Yellow	0.498	0.412	0.557	0.422	0.479	0.520	0.438	0.472	15	45
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	15
Orange	0.558	0.352	0.636	0.364	0.570	0.429	0.506	0.404	10	30
Blue	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1	10
Green	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	3	12
Brown	0.430	0.340	0.610	0.390	0.550	0.450	0.430	0.390	1	9

¹The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System.

Test for Coefficients of Retroreflection

Conformance to coefficient of retroreflection requirements shall be determined by instrumental method in accordance with ASTM E-810 “Test Method for Coefficient of Retroreflection of Retroreflective Sheeting”, and per E-810 the values of 0° and 90° rotation are averaged to determine the R_A in Table B.

Table B

Minimum Coefficient of Retroreflection R_A for new fluorescent sheeting(cd/lux/m²)

-4° Entrance Angle ³	Observation Angle ⁴	
	0.2°	0.5°
White	560	200
Yellow	420	150
Red	84	30
Orange	210	75
Green	56	21
Blue	30	13
Brown	18	7.5
30° Entrance Angle³		
White	280	100
Yellow	210	75
Red	42	15
Orange	105	37
Green	28	10
Blue	14	6
Brown	8.5	3.5

³Entrance Angle – The angle from the illumination axis to the retroreflector axis. The retroreflector axis is an axis perpendicular to the retroreflective surface.

⁴Observation Angle – The angle between the illumination axis and the observation axis.

Printed Colors and Overlay Films

For screenprinted or thermally transfer printed transparent color areas on white sheeting when processed according to 3M recommendations, the coefficients of retroreflection shall not be less than 70% of the value for the corresponding color in Table B. For white sheeting covered with 3M™ ElectroCut™ Film Series 1170 when processed according to 3M recommendations, the coefficients of retroreflection shall not be less than 100% of the value for the corresponding color in Table B. The color chromaticity and luminance shall conform to Table A on page 1.

Entrance Angularity Performance in Regard to Orientation

High intensity prismatic reflective sheeting is designed to be an effective wide angle reflective sheeting regardless of its orientation on the substrate or ultimate orientation of the sign after installation. Signs and applied copy (letters, arrows, borders and shields) can be fabricated and installed using the application orientation that most efficiently utilizes the reflective sheeting.

Note: For multi-panel signs it is recommended that all background panels be sheeted such that the sheeting direction is the same for all panels.

Fabrication Lines

The manufacture of prismatic sheeting results in lines being present in the product. In high intensity prismatic sheeting these lines are slightly thicker than the seal pattern legs. Fabrication lines are noticeable in shop light but are not observable on the road either in daylight or at night under typical use conditions (Figure 1).

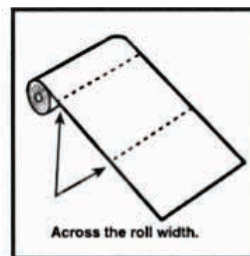


Figure 1 – Fabrication Lines

Adhesive

Series 3930 sheeting has a pressure-sensitive adhesive that is recommended for application at temperatures of 65°F (18°C) or higher.

Adhesive and Film Properties

Standard Test Panels

Unless otherwise specified herein, sheeting shall be applied to test panels and conditioned in accordance with ASTM D4956 and test methods and conditions shall conform to ASTM D4956.

Properties

The following properties shall conform to the requirements in ASTM D4956.

1. Adhesion
2. Outdoor weathering
 - retained coefficient of retroreflection
 - colorfastness

3. Shrinkage
4. Flexibility
5. Liner removal
6. Impact resistance
7. Night time color

In addition, Series 3930 sheeting will conform to the following properties.

1. Gloss

Test Method – Test in accordance with ASTM D523 using a 60° glossmeter.

Requirement – Rating not less than 50.

2. 2. Optical Stability

Test Method – Apply a 3 inch x 6 inch sample to a test panel. Measure R_A then place it in an oven at $71^\circ\text{C} \pm 3^\circ\text{C}$ ($160^\circ\text{F} \pm 5^\circ\text{F}$) for 24 hours followed by conditioning at standard conditions for 2 hours. Remeasure R_A .

Requirement – The sheeting shall retain a minimum of 85% and a maximum of 115% of the original coefficient of retroreflection.

Sign Fabrication Methods

Application

Series 3930 sheeting incorporates a pressure sensitive adhesive and should be applied to the sign substrate at temperature of $65^\circ\text{F}/18^\circ\text{C}$ or higher by any of the following methods:

Mechanical squeeze roll applicator – refer to 3M Information Folder (IF) 1.4. Application to extrusions that are edge wrapped requires sufficient softening of the sheeting. This can be accomplished by directing additional heat to the “next to last” edge roller. This practice will increase productivity and minimize cracking.

Hand squeeze roll applicator – refer to 3M IF 1.6.

Application of Series 3930 sheeting for complete signs or backgrounds must be done with a roll laminator, either mechanical or hand driven.

Hand Application

Hand application is recommended for legend and copy only. Refer to 3M Information Folder 1.5 for more details.

Hand applications will show some visual irregularities, which are objectionable to aesthetically critical customers. These are more noticeable on darker colors. To obtain a close-up uniform appearance, a roll laminator must be used.

All direct applied copy and border **MUST** be cut at all metal joints and squeegeed at the joints.

Splices

Series 3930 sheeting must be butt spliced when more than one piece of sheeting is used on one piece of substrate. The sheeting pieces should not touch each other. This is to prevent buckling as the sheeting expands in extreme temperature and humidity exposure.

Double Faced Signs

The sheeting on the bottom side of a double faced sign can be damaged if rolled through a squeeze roll applicator with an unprotected steel bottom roller. The use of a semi-soft flat sheet between the steel roller and the applied sign face will provide protection from damage. A material such as a rubber mat, tag board or cardboard is recommended.

Substrates

For traffic sign use, substrates found to be most reliable and durable are properly prepared aluminum sheets and extrusions. **Users are urged to carefully evaluate all other substrates for adhesion and sign durability.** Other substrates that may be satisfactory for proper application of sheeting will have the following characteristics:

- Clean
- Smooth
- Flat
- Rigid
- Dimensionally stable
- Weather resistant
- Non-porous
- High surface energy (passes water break test)

Refer to Information Folder 1.7 for surface preparation recommendations. Substrates with low surface energy may require additional preparation such as flame treatment, mechanical abrasion or use of adhesion promoters prior to sheeting application. Guide sign extrusions may be edge wrapped. Flat panels or unwrapped extrusions are to be carefully trimmed so that sheeting from adjacent panels does not touch on assembled signs.

High intensity prismatic sheeting is designed primarily for applications to flat substrates. Any use that requires a radius of curvature of less than five inches should also be supported by rivets or bolts. Plastic substrates are not recommended where cold shock performance is required. **Sign failures caused by the substrate or improper surface preparation are not the responsibility of 3M.**

Imaging

High intensity prismatic sheeting may be processed into traffic signs by any of the imaging methods described below. 3M assumes no responsibility for failure of sign face legends or backgrounds that have been processed with non-3M process colors or matched component imaging materials other than those listed below.

Screen Processing

Series 3930 sheeting may be screen processed into traffic signs before or after mounting on a sign substrate, using 3M Process Colors Series 880I or Series 880N. Series 880I or 880N process colors can be screened at 60-100°F (16-38°C) at relative humidity of 20-50%. A PE 157 screen mesh with a fill pass is recommended. Refer to Information Folder 1.8 for details. No clear coating is required and is not recommended. Use of other process colors series is not recommended. **Care should be taken to avoid flexing high intensity prismatic sheeting before and especially after screening to eliminate the possibility of cracking from improper handling techniques.**

Thermal Transfer Printing

High intensity prismatic TT series sheeting may be imaged with 3M™ Thermal Transfer Ribbon Series TTR2300 in conjunction with the Matan SprinG3 or Matan Spot4 thermal transfer printers. For regulated traffic signs, Series TTR2300 Spot Traffic Colors are to be applied using these printers and must be covered with 3M™ ElectroCut™ Film 1170. Refer to Product Bulletin TTR2300 for more information.

3M™ ElectroCut™ Film

3M™ ElectroCut™ Film Series 1170 may be used to provide transparent colored background copy for traffic control signs on high intensity prismatic sheeting. Refer to Product Bulletin 1170 for fabrication procedures.

Applied Cut-Out Copy

High intensity prismatic cut letters may be applied to series 3930 sheeting background to create a sign legend. Such cut-out copy may be directly applied to the background sheeting, or may be applied in a demountable form. Direct applied copy must be cut at all panel seams and carefully trimmed back so that sheeting from adjacent panels does not touch on assembled signs. Refer to Information Folder 1.10 for more information.

Note: *It is recommended to fabricate all but the largest signs using 1170 electronic cuttable overlay film (ECOF) instead of direct applied copy.*

Additional Imaging Options for Work Zone Signs

Vinyl Graphic Films

Scotchcal™ Vinyl Series 3650, Series 7720 and Series 7725 may be used to provide copy for traffic control signs on high intensity prismatic sheeting (typically orange, white or yellow sheeting) for use in construction work zones. Refer to Scotchcal™ product literature for more information.

Latex Ink Jet Printing

Series 3930 sheeting to be used in work zone signs may be imaged with HP 789 series black latex ink in conjunction with the HP Designjet L25500 Printer, or with 792 series black latex ink in conjunction with the HP Designjet L26500 Printer. Refer to Information Folder 3.4 for more information.

Note: *With the exception of 3M branded products, 3M does not represent that any printer or printer accessory recommended in 3M literature will meet customer requirements, any federal, state or local regulations or any applicable safety standards. Such determination is the responsibility of the printer owner.*

Cutting

Series 3930 sheeting may be cut into letters and shapes of at least 3 inches in height and stroke widths of at least 1/2 inch. Smaller sizes are not recommended. Sealing cut edges of Series 3930 sheeting is not required.

Plotter Cutting

Programmable knife cut (electronic cutting)

1. Flat bed plotters can either die cut or kiss cut and offer the most consistent reliable performance.
2. Friction Fed plotter. Kiss cut only. Success has been achieved using plotters that have 600 grams of down force and a 60° cutting blade. Additional drive wheels may need to be added to improve tracking. An alternative procedure is to cut sheeting from the liner side. Blade force and knife depth must be set to score but not cut through the topfilm. Break apart individual copy or apply premask to retain spacing.

Other Cutting Methods

Series 3930 sheeting may be hand cut or die cut one sheet at a time, and band sawed or guillotined in stacks. Cutting equipment such as guillotines and metal shears, which have pressure plates on the sheeting when cutting, may damage the optics. Padding the pressure plate and easing it down onto the sheets being cut will significantly reduce damage. Maximum stack height for cutting Series 3930 sheeting is 1 ½ inch or 50 sheets. Details on cutting can be found in Information Folder 1.10.

Storage and Packaging

Series 3930 sheeting should be stored in a cool, dry area, preferably at 65-75°F (18-24°C) and 30-50% relative humidity and should be applied within one year of purchase. Rolls should be stored horizontally in the shipping carton. Partially used rolls should be returned to the shipping carton or suspended horizontally from a rod or pipe through the core. Unprocessed sheets should be stored flat. Finished signs and applied blanks should be stored on edge.

Screen processed signs must be protected with SCW 568 slipsheet paper. Place the glossy side of the slipsheet against the sign face and pad the face with closed cell packaging foam. Double faced signs must have the glossy side of the slipsheet against each face of the sign.

Unmounted screened faces must be stored flat and interleaved with SCW 568 slipsheet, glossy side against the sign face.

Avoid banding, crating, or stacking signs. Package for shipment in accordance with commercially accepted standards to prevent movement and chafing. Store sign packages indoors on edges.

Panels or finished signs must remain dry during shipment and storage. If packaged signs become wet, unpack immediately and allow signs to dry. Refer to Information Folder 1.11 for instructions on packing for storage and shipment.

Installation

Nylon washers are required when twist style fasteners are used to mount the sign.

Cleaning

Signs that require cleaning should be flushed with water, then washed with a detergent solution and soft bristle brush or sponge. Avoid pressure that may damage the sign face. Flush with water following washing. Do not use solvents to clean signs. Refer to 3M Information Folder 1.10.

Health and Safety Information

Read all health hazard, precautionary and first aid statements found in the Material Safety Data Sheet and/ or product label of any materials prior to handling or use.

General Performance Considerations

The durability of high intensity prismatic Series 3930 sheeting and finished signs using 3M Matched Component materials will depend upon substrate selection and preparation, compliance with recommended application procedures, geographic area, exposure conditions, and maintenance.

Maximum durability of Series 3930 sheeting can be expected in applications subject to vertical exposure on stationary objects when processed and applied to properly prepared aluminum according to 3M recommendations provided in Information Folder 1.7. The user must determine the suitability of any nonmetallic sign backing for its intended use. **Sign failures caused by the substrate or improper surface preparation are not the responsibility of 3M.** Applications to unprimed, excessively rough or non-weather resistant surfaces or exposure to severe or unusual conditions can shorten the performance of such applications. Signs in mountainous areas that are covered by snow for prolonged periods may also have reduced durability. 3M process colors and ElectroCut™ Film, when used according to 3M recommendations, are generally expected to provide performance comparable to colored reflective sheeting. Custom colors, certain lighter colors, heavily toned colors or blends containing yellow or gold may have reduced durability. Atmospheric conditions in certain geographic areas may result in reduced durability.

Periodic sign inspection and regular sign replacement are strongly recommended in order for sign owners to establish their own effective service life expectation, beyond the warranty period.

3M has tested HP Designjet Printers and black latex inks: L25500 printer/series 789 black ink, and L26500 printer/series 792 black ink; and when applied within parameters defined in IF 3.4 the resulting sign performance is considered to be commensurate with typically expected sign life. However, this imaging system is not covered as part of the 3M Matched Component system noted in the General Warranty Terms.

3M Basic Product Warranty and Limited Remedy

3M™ High Intensity Prismatic Reflective Sheeting Series 3930 (“Product”) is warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin. If Series 3930 Sheeting is proven not to have met the Basic Warranty on its shipment date, then a buyer’s exclusive remedy, and 3M’s sole obligation, at 3M’s option, will be refund or replacement of the sheeting.

General Warranty Terms:

1. 3M makes the Additional Warranty (as defined below) as to any traffic control and guidance sign in the United States and Canada (“Sign”) made with 3M™ High Intensity Prismatic Reflective Sheeting Series 3930 (“Product”) and the Matched Component materials listed in Table E. Any Additional Warranty is contingent on all components involved in that Additional Warranty being stored, applied, installed, and used only as 3M recommends in its Product Bulletins and Other Product Information.
2. The Basic Warranty and any applicable Additional Warranty are collectively referred to as the “3M Warranty.” EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, THE 3M WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, RIGHTS OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND THOSE ARISING FROM A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. A BUYER IS RESPONSIBLE FOR DETERMINING IF A PRODUCT IS SUITABLE FOR ITS PARTICULAR PURPOSE AND APPLICATION METHODS.
3. A Sign’s failure to meet the 3M Warranty must be solely the result of the Product or the matched component materials’ design or manufacturing defects. 3M has no obligation under the 3M Warranty if a sign failure is caused by: improper fabrication, handling, maintenance or installation; non-vertical applications where the Sign face is more than +/- 10% from vertical; use of any material or product not made by 3M or not included in Table E; use of application equipment not recommended by 3M; failure of sign substrate; loss of adhesion due to incompatible or improperly prepared substrate; exposure to chemicals, abrasion and other mechanical damage; snow burial or any other sign burial; collisions, vandalism or malicious mischief.

4. 3M reserves the right to determine the method of replacement, and any replacement Product will have the remainder of the original Product’s unexpired 3M Warranty. Claims made under this warranty will be honored only if
 - The Sign was dated upon completion of fabrication (“Fabrication Date”) using a permanent method (sticker, permanent marker or crayon, metal stamp, etc.)
 - 3M is notified of a 3M Warranty claim during any applicable Warranty Period and the owner or fabricator provides the information reasonably required by 3M to verify if a 3M Warranty is applicable.

Additional Warranty and Limited Remedy

1. The Additional Warranty for a Sign made with the Product is that the Sign will: (a) remain effective for its intended use when viewed from **a moving vehicle under normal day and night driving conditions by a driver with normal vision**, and (b) after cleaning, will meet the **minimum values for coefficient of retroreflection stated in Table C** for Table C’s applicable Warranty Period measured from the Sign’s Fabrication Date.

Table C

Minimum Percent Retained of Table B

Initial R_A for applicable Warranty Period for white, yellow, red, green, blue and brown

Warranty Period	Minimum Percentage R_A Retained
1-7 Years	80%
8-10 Years	70%

2. If any Sign made with the Product is proven not to have met the Additional Warranty, then a buyer’s **exclusive remedy**, and 3M’s sole obligation, at 3M’s option:
 - a. if this occurs within seven years after the Fabrication Date, then 3M will, at its expense, restore the Sign’s surface to its **original effectiveness**; or
 - b. if this occurs during the remainder of the Additional Warranty Period, then 3M will furnish only the necessary 3M sheeting Product and matched component materials quantity to restore the Sign’s surface to its original effectiveness.

Additional Warranty & Limited Remedy for 3934 Orange Product

- The Additional Warranty for a Sign made with 3934 orange sheeting (Orange Product) is that the Sign will: (a) **remain effective for its intended use when viewed from a moving vehicle under normal day and night driving conditions by a driver with normal vision;** (b) after cleaning, will retain the coefficient of retroreflection stated in Table D for three years measured from Fabrication Date; and (c) after cleaning, the Product will **maintain daytime luminance equal to or greater than the minimums specified in Table A.**

Table D

Minimum Coefficient of Retroreflection
for 3934 Orange sheeting Product (cd/lux/m²)
(0.2° observation and -4° entrance)

Warranty Period	Minimum R _A
Orange	80

If any Sign made with the Product is proven not to have met the Additional Warranty, then a buyer's **exclusive remedy**, and 3M's sole obligation, at 3M's option, is that 3M will provide pro-rated replacement of the 3M materials.

Table E

Matched Component Materials.

Matched Components	
Process Colors	Series 880I
Process Colors	Series 880N
Thermal Transfer Ribbons – Spot Traffic Colors only*	Series TTR2300
ElectroCut™ Film	Series 1170
Premium Protective Overlay Film	Series 1160
Slipsheet	SCW 568
Prespacing Tape	SCPS-2
Premasking Tape	SCPM-3
Transfer Tape	TPM-5

*must be covered with 3M™ ElectroCut™ Film 1170

Refer to 3M Information Folders and Product Bulletins for detailed information about recommended application procedures and equipment.

Other Product Information

Always confirm that you have the most current version of the applicable Product Bulletin, Information Folder or Other Product Information.

IF 1.4	Instructions for Interstate Squeeze Roll Applicator
IF 1.5	Hand Application Instructions
IF 1.6	Hand Squeeze Roll Applicator
IF 1.7	Sign Base Surface Preparation
IF 1.8	Process Color Application Instructions
IF 1.10	Cutting, Premasking, and Prespacing
IF 1.11	Sign Maintenance Management
PB 880I	Process Color 880I
PB 880N	Process Color 880N
PB 1170	ElectroCut™ Film
PB TTR2300	Thermal Transfer Ribbons Series TTR2300
PB 1160	Protective Overlay Film 1160 Ink Jet Imaging with HP Designjet L25500
IF 3.4	Printer and HP 789 Series latex Inks

Limitation of Liability

3M WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO A BUYER FOR DIRECT (other than the applicable Limited Remedy stated above), SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS) IN ANY WAY RELATED TO A PRODUCT OR THIS PRODUCT BULLETIN, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY ON WHICH SUCH DAMAGES ARE SOUGHT.

ASTM Test Methods are available from ASTM International, West Conshohocken, PA.

3M assumes no responsibility for any injury, loss or damage arising out of the use of a product that is not of our manufacture. Where reference is made in literature to a commercially available product, made by another manufacturer, it shall be the user's responsibility to ascertain the precautionary measures for its use outlined by the manufacturer.

Important Notice

All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, or conditions express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct, special or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith. Statements or recommendations not contained herein shall have no force or effect unless in an agreement signed by officers of seller and manufacturer.

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3M

ElectroCut™ Film

Series 1170

Product Bulletin 1170

July 2007

Replaces PB 1170 dated January 2004

Description

3M™ ElectroCut™ Film Series 1170 is a durable, transparent, acrylic colored film coated with a transparent, pressure-sensitive adhesive that is protected by a removable liner available in the following colors.

<u>Color</u>	<u>Product Code</u>
Yellow	1171
Red	1172
Orange	1174
Blue	1175
Standard Green (Worboy)	1176
Green	1177
Black (Opaque)	1178
Brown	1179

Series 1170 is intended for use on 3M Reflective Sheeting as part of 3M's Matched Component System™ for signing. Series 1170 E.C. Film has a clear pressure-sensitive adhesive compatible with all the following 3M reflective sheetings used in permanent signing:

3M™ Reflective Sheeting

Engineer Grade Series 3290
High Intensity Grade Series 3870
High Intensity Prismatic Series 3930
Diamond Grade™ Series 3990 VIP
Diamond Grade™ Series 3970 LDP
Diamond Grade™ Series 3990T Translucent
Diamond Grade™ DG³ Series 4000

E.C. Film is designed with a special film liner for kiss-cutting on electronic cutting machines. Rolls are available prepunched for sprocket fed cutters or unpunched for flatbed or friction fed cutters. Colored E.C. Film is often used instead of silk

screened inks to provide transparent colored background copy for retroreflective street name signs and other traffic control signs. Various film widths are available to fabricate single sign panels up to 48" wide. For single panel signs requiring more than a single piece of sheeting or for multipanel signs such as guide signs, be sure to follow 3M color matching procedures in Information Folder 1.10 to achieve satisfactory results. **(For best color uniformity on a colored multipanel sign, make all panels from the same lot of E.C. Film.)**

Properties

Standard colors of series 1170 E.C. Films conform to appropriate retroreflective sheeting specifications – Federal Specification FP-96, Section 178.01 (a) and ASTM D4956 when applied over 3M™ Diamond Grade™ Reflective Sheeting Series 3970, 3990, 3990T or 4000, 3M™ High Intensity Grade Sheeting Series 3870 or 3930, or 3M™ Engineer Grade Sheeting Series 3290.

Due to the high transparency of 3M acrylic E.C. Films, retroreflective signs made with these E.C. Films give equal or better retroreflective performance than sheetings screened with transparent inks. Transparent blue, green, red, and yellow E.C. Films applied to white 3M™ Reflective Sheeting can be expected to give performance comparable to integrally colored reflective sheetings. The coefficient of retroreflection of the colored areas of E.C. Film signs will depend on both the overlay film transparency and the brightness of the white reflective substrate.

Table 1 gives the minimum and maximum coefficient of retroreflection (R_A values) for each transparent 1170 Series film as a percentage of the R_A of the white reflective background on which it is applied.

Table 1

Coefficient of retroreflection R_A^* for colored E.C. Films applied over white retroreflective sheeting (expressed as % of white retroreflective sheeting background)

Transparent (R_A color/ R_A white background) x 100%		
Color	Minimum	Maximum
Green	13.0	20
Blue	6.5	20
Red	14.0	24
Yellow	60.0	80
Orange	30.0	-
Brown	5.0	-
Standard Green (Worboy)**	8.0	14

* R_A (cd/lux/m²) measurements shall be made at 0.2° observation angle, -4° entrance angle, and 0° rotation, per ASTM E-810.

**Standard green color for U.K., Australia, and New Zealand

Film Liner

Series 1170 films have a transparent film release liner designed to aid the cutting process and the removal of the film weed after cutting. The rolls of film come edge weeded on punched rolls to prevent adhesive build-up on sprocket fed cutters.

Storage

Store in a cool, dry area 65-75°F (18-24°C), 30-50% relative humidity, and use within one year from date of receipt.

Fabrication – Cutting and Application Procedures

Important Note: It is recommended that inside radius corner fonts be used when cutting series 1170 film. Read and follow the manufacturer's operating manual carefully for proper use of cutting equipment.

- Adjust knife pressure to cut cleanly through the film without cutting into the liner. A 30 degree blade works best. Spacing between letters or numbers should be adjusted to the aesthetic preference of the user. Consult the operating manual for instructions on how to regulate spacing. **Note:** Do not cut at high speed on variable speed machines.
- Avoid sharp bends when cutting and handling film as this may cause film to release from the liner.
- After cutting is complete, lay sheets flat, face to face, back to back. Always store sheets in this manner until the sheeting has been weeded and transfer tape has been applied to sheeting.
- Use a stripping tool designed for weeding films that has a blunt (not a sharp) edge.
- After weeding is completed, store sheets flat, face to face and back to back, until transfer tape is applied.
- TPM-5 Clear Transfer Tape is recommended for best results. SCPM-3 Application Tape is also satisfactory for use on small signs. Other transfer tapes are not recommended.
- Transfer tape can be applied either by hand using a plastic squeegee or through a hand squeeze roll laminator. If applying the transfer tape by hand, care must be taken to **always** squeegee from the center to the outside in both directions. If applying the transfer tape through the HSRA, the “lead” edge must be cut square and fed into the nip very carefully to avoid wrinkles in the E.C. Film.
- Series 1170 film may be applied to the sheeting either before or after the sheeting has been applied to the substrate. Series 1170 film can be applied to Engineer Grade sheeting series 3290, High Intensity Grade sheeting series 3870 and 3930, Diamond Grade™ sheeting series 3970, 3990, 3990T and 4000. Use of a hand squeeze roll laminator is recommended to ensure satisfactory results. Use the “split liner method” – start in the middle of the sheet and remove half the liner to ensure proper alignment.
- After series 1170 film and sheeting have been applied, remove the transfer tape by carefully removing the tape at as low an angle as possible.
- IMPORTANT!** When the transfer tape has been removed, reroll the sign through the laminator to ensure good adhesion.
- A clean cutting blade is required. To remove adhesive build-up use a soft cloth dampened with mineral spirits, isopropyl alcohol or 3M Natural Cleaner.

Health and Safety Information

Read all health hazard, precautionary and first aid statements found in the Material Safety Data Sheet and/or product label of chemicals prior to handling or use.

General Performance Considerations

All existing field performance warranties for the reflective sheetings remain in effect when series 1170 film is applied over recommended Reflective Sheetings.

FOR INFORMATION OR ASSISTANCE

CALL:

1-800-553-1380

IN CANADA CALL:

1-800-265-1840

Fax-on-Demand in the U.S. and Canada:

1-800-887-3238

Internet:

www.3M.com/tss

3M assumes no responsibility for any injury, loss or damage arising out of the use of a product that is not of our manufacture. Where reference is made in literature to a commercially available product, made by another manufacturer, it shall be the user's responsibility to ascertain the precautionary measures for its use outlined by the manufacturer.

Important Notice

All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, or conditions express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct, special or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith. Statements or recommendations not contained herein shall have no force or effect unless in an agreement signed by officers of seller and manufacturer.

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Scotchcal™ Graphic Film

Series 3650

For Solvent and UV Screen Printing Only

1. Product Description

A. Product Features

- 2-mil opaque film
- Available in white, black and transparent
- Pressure-sensitive adhesive
- Resists gasoline vapors and occasional petroleum spills
- Permanent film

B. Recommended Types of Graphics and End Uses

When constructed and used as described in this Bulletin, these types of graphics and end uses may be warranted by the [3M™ MCS™ Warranty](#). Please read the entire Bulletin for details.

- Clear, window or 2-way graphics
- Outdoor and indoor graphics and signs
- Information labels
- Commercial fleet vehicle graphics and emblems
- Small format original equipment manufacturer's decorative and identification graphics, cautionary, safety and vandal-resistant labeling

C. Performance Overview

3M tests the performance of both individual products and finished graphic constructions. This table shows the best performance expected from this product without a Warranty Period and with a Warranty Period.

For detailed graphic construction and application options along with specific Warranty Periods, please see the Warranty Information, Section 5.

Expected Performance Life. This is the estimated period of time the product should perform satisfactorily.	
Unprinted film with no graphic protection, applied to a flat vertical outdoor surface in a non-abusive environment.	10 years (opaque) 8 years (transparent) Unwarranted Period
3M™ MCS™ Warranty. This is the maximum period of time 3M will warrant the finished graphic performance.	
Printed film with the best 3M ink and graphic protection option, applied to a flat, vertical surface.	7 years Warranty Period

D. Limitations of End Uses

(1) Unsuitable End Uses for This Film

This 3M product is not designed or recommended for the following uses. Please contact us to discuss other options.

- Graphics applied to corrugated surfaces
- Graphics applied to stainless steel vehicles
- Fleet or vehicle graphics without graphic protection
- Any graphic without graphic protection that is exposed to abrasive conditions, harsh cleaners or chemicals

Note: 3M Commercial Graphics Division policy is not to support applications of clear graphic film when a driver's view is obstructed and/or where local laws prohibit its use.

(2) Light Passage Laws and Regulations



CAUTION

Some states have laws or regulations requiring minimum light passage that may limit or preclude the use of this product on vehicle windows. The user is responsible for determining and complying with all applicable standards.

(3) Important Information About Bus Applications

Film used on buses must not be applied so as to restrict the safe use of emergency window exits. See the most current version of [Instruction Bulletin 5.4](#) for details.

2. Compatible Products

This section provides a list of products that are approved by 3M for use with the base film covered in this Bulletin, and used for the creation of a graphic that is covered by the 3M™ MCST™ Warranty. Refer to the Product and Instruction Bulletins listed in 3M Related Literature at the end of this Bulletin for more information about the compatible products.

(1) Screen Printing Inks

- 3M™ Screen Printing Ink Series 1900 *line color and four-color*
- 3M™ Screen Printing UV Ink Series 9800 *line color and four-color*

(2) Graphic Protection

- 3M™ Screen Print Gloss Clear 1920DR
- 3M™ Screen Print Low Gloss Clear 1930
- 3M™ Screen Print UV Gloss Clear 9740i
- 3M™ Screen Print Low Gloss Clear 9730UV
- 3M™ Screen Print UV Gloss Clear 9800CL
- 3M™ Screen Printing Clear VI0402

(3) OEM Inks and Clears

For OEM graphics only!

- Sericol™ Duracal™ UV Screen Print Inks
- Sericol™ Duracal™ Screen Print Clear *(approved for OEM applications only)*

To identify a Sericol inks distributor, contact FUJIFILM North America Corporation, Graphic Systems Division at http://www.fujifilmusa.com/products/graphic_arts_printing/index.html; 1101 W. Cambridge Drive, Kansas City, KS 66103; Tel: 1-800-255-4562 or 913-342-4060.

(4) Other Products

- 3M™ Edge Sealer 3950
- 3M™ Prespacing Tape SCPS-2
- 3M™ Prespacing Tape SCPS-53X
- 3M™ Premasking Tape SCPM-3
- 3M™ Premasking Tape SCPM-44X

3. Characteristics

These are typical values for unprocessed product; processing may change the values.
Contact your 3M representative for a custom specification.

A. Physical Characteristics

Characteristic	Value
Material	Vinyl
Color	3650-10: White 3650-12: Black 3650-114: Clear
Thickness	Without adhesive: 2 mils (0.05 mm) With adhesive: 3 to 4 mils (0.08 to 0.10 mm)
Adhesive type	Pressure sensitive
Adhesive color	3650-10: Gray-pigmented 3650-12: Clear 3650-114: Clear
Liner	Polyethylene-coated layflat
Tensile strength (<i>minimum</i>)	5.5 pounds/inch at 73°F (0.9 kg/cm at 23°C)
Flammability	ASTM E84 test report or go to the On-line Product Catalog at 3Mgraphics.com All other test reports: call 1-800-328-3908
Safety and regulatory recognition	Tested and found to comply with UL 969 - Standard for Marking and Labeling Systems. US file MH11410.

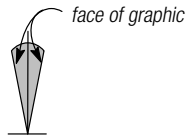
B. Application Characteristics

Characteristic	Value
Adhesion <i>24 hours after application</i>	ABS: 5 pounds/inch (0.9 kg/cm) Acrylic, enamel: 5 pounds/inch (0.9 kg/cm) Aluminum, anodized: 6 pounds/inch (0.11 kg/cm) Chrome: 5 pounds/inch (0.9 kg/cm) Fruehauf pre-painted panels: 4 pounds/inch (0.7 kg/cm)
Chemical resistance	Resists mild acids, mild alkalis, and salts. Excellent resistance to water (<i>this does not include immersion</i>)
Finished graphic application recommendation	Surface type: Flat, with and without rivets Substrate type: Glass, metal, paint, fiberglass reinforced plastic, rigid plastic Application temperature: 50° to 100°F (10° to 38° C) <i>air and substrate</i> Application method: Fleet & Vehicles: dry All others: wet or dry
Applied film shrinkage	0.015 inch (0.4 mm)
Finished graphic exposure temperature	-65° to +160°F (-54° to +70°C)
Graphic removal	Permanent film

4. Definitions

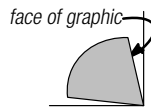
A. Exposure Types

U.S. Vertical Exposure



The face of the graphic is $\pm 10^\circ$ from vertical.

U.S. Non-vertical Exposure



The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal. This includes non-vertical surfaces of vehicle wraps or fleet graphics.

U.S. Horizontal Exposure



The face of the graphic is $\pm 5^\circ$ from horizontal.

U.S. Desert Southwest Exposure

Any outdoor graphic exposed to solar energy more than half of the daylight hours in Arizona, New Mexico and the desert areas of California, Nevada, Utah and Texas is subject to reduced warranties. A detailed map is available at 3Mgraphics.com under Warranties.

B. Graphic Types

Indoor Signs

Stationary graphics applied indoors and *not* exposed to the elements.

Outdoor Signs

Stationary graphics applied outdoors and exposed to the elements.

OEM

Labels and decorative graphics produced for and used by original equipment manufacturers.

Vehicle Types

Vehicle. Buses, vans, passenger vehicles, delivery trucks, pickup trucks, enclosed trailers.

Straight Trucks, Semi-Tractors and Semi-Trailers. Straight trucks, semi-tractors and semi-trailers used for commercial business purposes. Excludes air shields.

Recreational Vehicle (RV). Vehicles used for personal pleasure, such as campers, motor homes and trailers, that are not used in connection with any commercial or business enterprise.

C. Graphic Construction

The products used to make a graphic, which may include film and/or flexible substrate, graphic protection, ink, printer and application tape.

D. Graphic Protection

Overlamine films or clear coats used to protect the graphic and/or change gloss.

5. Warranty Information

A. Warranty Coverage Overview

The warranty coverage for each graphic is based on the user(s) both reading and following all applicable and current 3M Product and Instruction Bulletins. 3M will honor the Warranty Period stated in the base film's Product Bulletin that is current when the film was purchased. The Warranty Period may be reduced and stipulations may apply for certain constructions and applications, as covered in this Bulletin.

The following is made in lieu of all other express or implied warranties, including any implied warranty of merchantability or fitness for a particular purpose or implied warranty arising out of a course of dealing, custom or usage of trade.

B. 3M Basic Product Warranty

This product is warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin and as further set forth in the [3M Commercial Graphics Warranties Brochure](#).

C. Limited Remedy

3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. These remedies are exclusive.

D. Limitation of Liability

Except where prohibited by law, 3M SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO PURCHASER OR USER FOR ANY DIRECT (EXCEPT FOR THE LIMITED REMEDY PROVIDED ABOVE), INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LABOR, NON-3M MATERIAL CHARGES, LOSS OF PROFITS, REVENUE, BUSINESS, OPPORTUNITY, OR GOODWILL) RESULTING FROM OR IN ANY WAY RELATED TO SELLER'S PRODUCTS, SERVICES or THIS BULLETIN. This limitation of liability applies regardless of the legal or equitable theory under which such losses or damages are sought including breach of contract, breach of warranty, negligence, strict liability, or any other legal or equitable theory.

E. Additional Limitations

See the [3M Commercial Graphics Warranties Brochure](#) at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

F. 3M™ MCS™ Warranty

Subject to Stipulations set forth in Section D., below

Finished graphics constructed with the materials specified and the exposure specified in the Warranty Period Table, Section F.(1), is eligible for the 3M™ MCS™ Warranty. For warranties for other exposures, see Section I.(1).

(1) Warranty Period Table

for Finished Graphics
in a Standard U.S. Vertical
Exposure

Veh = Vehicle, RV, Straight Truck, Semi-Tractor and Semi-Trailer Graphics
OEM = Small format OEM labels and graphics
Signs = Indoor and Outdoor Sign Graphics

Warranty Period, in Years												
Graphic Protection	No Printing			Ink Series 1900			Ink Series 9800			Ink Series 9800 Metallic		
	Veh	OEM	Signs	Veh	OEM	Signs	Veh	OEM	Signs	Veh	OEM	Signs
Films 3650-10, 3650-12												
1920DR	—	—	—	5	5	5	—	—	—	—	—	—
1930	—	—	—	2	2	2	—	—	—	—	—	—
V10402	—	—	—	6	5	6	—	—	—	—	—	—
9740i	—	—	—	6	5	6	7	5	7	7	5	7
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None:				—	—	—	—	—	—	—	—	—
3650-10	8	5	7	—	—	—	—	—	2	—	—	—
3650-12	7	5	7	—	—	—	—	—	2	—	—	—
Film 3650-114												
1920DR	—	—	—	5	5	5	—	—	—	—	—	—
1930	—	—	—	2	3	3	—	—	—	—	—	—
V10402	—	—	—	5	5	5	—	—	—	—	—	—
9740i	—	—	—	5	5	5	5	5	5	5	5	5
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None	5	5	5	—	—	—	—	—	—	—	—	—

G. 3M™ MCS™ Warranty Using Sericol Inks

Application: OEM graphics only

Film: 3650-10, 3650-12, 3650-114

Ink and Graphic Protection: Sericol Duracal UV Screen Print Ink and Clear

Warranty Period: 3 years in a vertical exposure

H. Legibility Warranty

For Fleet Graphics ONLY for Horizontal, Exposure and Selected Constructions

Applications subjected to maximum sunlight and environmental conditions used on rooftops of commercially-owned fleet vehicles where identification from the air is needed are warranted for legibility only for the following constructions. The graphic will change color, lose gloss and chalk.

Warranty Period, in Years

Films 3650-10, 3650-12		Horizontal Exposure	
Ink Series	Clear	U.S.	U.S. Desert Southwest
No printing	None	5	3
9800	9740i 9800CL	5	3

I. General Warranty Stipulations for 3M™ MCS™ Warranty

These stipulations apply to the 3M™ MCS™ Warranty. Also see the Graphics Market Center Warranty Brochure.

(1) Reduced Warranty Period for Other Graphic Exposures

For graphics oriented in a non-vertical or desert southwest, outdoor exposure, multiply the Warranty Period (in years) for your graphic construction as shown in the applicable Warranty Period Table, Section F.(1) by the percentage shown for the intended graphic exposure.

If the Graphic Exposure is	Use this Percentage of U.S. Vertical Exposure, Warranty Period	Warranty Period Calculation Examples
U.S. Non-vertical	50% (0.5)	0.5 x 5 years = 2.5 years
Desert Southwest Vertical	70% (0.7)	0.7 x 5 years = 3.5 years
Desert Southwest Non-vertical	35% (0.35)	0.35 x 5 years = 1.75 years
U.S. Horizontal	Warranted for legibility only. See Section 5.H. for more details.	

(2) Abrasion and Loss of Gloss

- Abrasion damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear. However, to help maintain the appearance of your graphic, use the recommended graphic protection whenever:
 - it is required for the construction and end use as shown in the Warranty Period tables.
 - the graphic is exposed to abrasive conditions, harsh cleaners or chemicals.
- Clear 1930 may haze, which is not warranted.

(3) Gasoline Vapor and Occasional Spills

For the best protection against staining for screen printed graphics subjected to gasoline vapors or occasional spills, use ink series 1900 with clear V10402.

(4) Application to Glass

3M accepts no liability for glass breakage when using this film for window graphics. See [Instruction Bulletin 5.1](#) for details.

(5) Application Outside the U.S.

Contact the 3M organization for that country.

(6) Graphics Made with Components Not Sold or Recommended by 3M

The **3M™ MCS™ Warranty** does not cover finished graphics made with inks, film, graphic protection and/or application tapes that are not sold or recommended by 3M. The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include any other products.

6. Factors that Affect Graphic Performance Life

The actual performance life of a graphic depends on all of the following:

- correct combination of 3M-recommended graphics products.
- ink formulation.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.

7. Graphics Manufacturing



CAUTION

Before using any equipment, always follow the manufacturers' instructions for safe operation.

A. Screen Printing

Formulations and processing conditions can affect ink durability. Refer to the Product and Instruction Bulletins for your ink for limitations and proper usage.

- The liner on film series 3650 is not printable. If you need a printable liner, contact Technical Service at 800-328-3908.
- Graphic protection can improve the appearance, performance and durability of your graphic. A clear coat also prevents chalking on unprinted colored films. Use standard screen printing methods to apply clear coats.

B. Cutting

The following are common cutting methods for this film. See [Instruction Bulletin 4.1](#) for details.

(1) Methods

- | | |
|--------------------------------|---------------------------------------|
| • Bandsawing | • Guillotine |
| • Hot kiss cutting | • Hand cut |
| • Drum-type electronic cutting | • Cold and hot steel-rule die cutting |
| • Flat-bed electronic cutting | • Knifeless™ Tape |

(2) Size of Cut Text

The following minimum values for cutting text from film series 3650 are based on upper case Helvetica medium type. Weeding is much more difficult with smaller text.

Minimum stroke width: 0.25 inch (6.35 mm)

Minimum height: 3.0 inch (76.2 mm)

Minimum radius for end of stripe: 0.024 inch (0.6 mm)

C. Application Tapes

(1) When to Use Premasking Tape

- Use as an application aid to increase stiffness, and prevent stretching and damage during application.
- Use when little or no liner is exposed.

(2) When to Use Prespacing Tape

- Use to hold cut and weeded letters or graphics in registration after removing the film liner.
- Use to protect cut graphic parts from scratching or damage during application.
- Use when large amounts of liner are exposed.

(3) How to Select a Tape

Determine whether you want to premask the graphic or prespace the film elements. Then locate the graphic protection on your graphic in the table below, and use the corresponding tape. See [Instruction Bulletin 4.3](#) for complete details.

EXAMPLE: If the film is protected by clear 9740i and you want to premask the film, use premasking tape SCPM-44X.

Select the tape based on what is on top of the graphic

Application Tape	Unprinted	1920DR, 1930	9740i 9730UV	9800 Ink Only	9800CL
Premasking SCPM-3	■	■	—	—	—
Prespacing SCPS-2	■	■	—	—	—
Premasking SCPM-44X	—	—	■	■	■
Prespacing SCPS-53X	—	—	■	■	■

— = This application tape is not recommended for the construction.

8. Application and Installation

A wet or dry application method may be used, EXCEPT on vehicles, which must be dry applied.

Refer to the 3M Related Literature section for a list of the Instruction Bulletins that may be needed to apply or install this film.

A. Pressure-Sensitive Adhesive

This film has a pressure-sensitive adhesive. It bonds to the surface even with light pressure and cannot be repositioned.

B. Edge Sealing

If an application requires edge sealing, use edge sealer 3950.

9. Maintenance

Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline.) See [Instruction Bulletin 6.5](#).

Chalking on unprinted colored film can be washed off with normal graphic cleaning methods.

10. Removal

Film series 3650 is not a removable film. Removal requires a solvent-based or mechanical remover system. It may be very time consuming and may damage the substrate.

11. Shelf Life, Storage and Shipping

A. Shelf Life

Total shelf life: 3 years from the date of manufacture on the original box.

If you do process the film, do so within 2 years and apply within 1 year.

If you do not process the film, apply it within 3 years.

B. Storage Conditions

- 40° to 80°F (4° to 27°C)
- Out of sunlight
- Clean dry area
- Original container
- Bring the film to print room temperature before using

C. Shipping Finished Graphics

Flat (may be separated by paper), or rolled printed side out on 5 inch (13 cm) or larger core. This helps prevent the liner and, if used, the application tape from popping off.

12. Health and Safety



CAUTION

When handling any chemical products, read the manufacturers' container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information. To obtain MSDS sheets for 3M products go to 3M.com/MSDS, or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturers' instructions for safe operation.

13. 3M Related Literature

Before starting any job, be sure you have the most current Product and Instruction Bulletins.

The information in 3M Product and Instruction Bulletins is subject to change. [Current Bulletins](#) are available at 3Mgraphics.com. The following applicable Bulletins provide information and processes you need to properly make the graphics described in this Bulletin. Additional Bulletins may be needed as indicated in the 3M Related Literature section of other 3M components you use.

Bulletin types: PB = Product Bulletin; PB-IB = Product & Instruction Bulletin; IB = Instruction Bulletin

Subject	Type	Bulletin No.
3M™ Screen Printing Ink Series 1900 and Overprint Clear V10402	PB	1900
- Screen printing with ink series 1900 - line color	IB	3.12
- Screen printing with ink series 1900 - 4-color	IB	3.11
3M™ Screen Printing UV Ink Series 9800	PB	9800
- Screen printing with UV ink series 9800 - line color	IB	3.20
- Screen printing with UV ink series 9800 4-color	IB	3.21
3M™ Screen Print UV Gloss Clear 9740i	PB-IB	UV Clears
Preparation for four color screen printing	IB	1.1
Design of graphics	IB	2.1
Using 3M application tapes; premasking and prespacing for films	IB	4.3
Application, substrate selection, preparation and substrate-specific application techniques	IB	5.1
Application, special applications and vehicles	IB	5.4
Application, general procedures for indoor and outdoor dry applications	IB	5.5
Storage, handling, maintenance, removal	IB	6.5

[3M Commercial Graphics Warranty Brochure](#)

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Sericol and Duracal are trademarks of FUJIFILM Corporation.

Knifeless is a trademark of Knifeless Technology Systems.

14. Bulletin Change Summary

Corrected adhesive color to clear for black film 3650-12. Clear 9740i is a direct replacement for clears 9720i and 9720UV. Added flammability information on ASTM E84. This product complies with UL 969 - Standard for Marking and Labeling Systems. Added Knifeless tape as a recommended cutting method. Updated overall bulletin format including adding new Performance Overview section and revising the Warranty Information section. Warranted Durability is now referred to as Warranty Period.



Commercial Graphics

3M Center, Building 220-12E-04
St. Paul, MN 55144 USA
General & Technical
1-800-328-3908
Fax 1-651-736-4233

www.3Mgraphics.com

3M Canada

PO Box 5757
London, Ontario
Canada N6A 4T1
General 1-800-265-1840
Fax 519-452-6245

3M México S.A. de C.V.

Av. Santa Fe No. 55
Col. Santa Fe, Del. Alvaro Obregón
México D.F. 01210
General 5255-5270-0400
Fax 5255-5270-2277

3M Puerto Rico, Inc.

350 Chardon Avenue
Suite 1100
San Juan, PR 00918
General 787-620-3000
Fax 787-620-3018



Scotchcal™ ElectroCut™ Graphic Film

Series 7725

For Electronic Cutting, Thermal Transfer Printing and Screen Printing

1. Product Description

- 2-mil cast vinyl in 61 colors
- Pressure-sensitive, permanent adhesive
- Same color on both sides
- Transparent synthetic liner resists moisture absorption and static build up.
- Lays flat for easier assembly of multi-color graphics.
- Superior cutting as small as 0.25 inch (0.64 cm) and weeding.
- Ideal for prespaced and electronically cut, screen printed or used in narrow width thermal transfer printing systems

2. Recommended Types of Graphics and End Uses

When constructed and used as described in this Bulletin, these types of graphics and end uses may be warranted by the [3M™ MCS™ Warranty](#). Please read the entire Bulletin for details.

- Prespaced and electronically-cut graphics
- Commercial and industrial graphic applications, including emblems, vehicle graphics, labels, striping, general signage, two-way window markings
- Thermal transfer printed graphics

3. Performance Overview

3M tests the performance of both individual products and finished graphic constructions. This table shows the best performance expected from this product without a Warranty Period and with a Warranty Period.

For detailed graphic construction and application options along with specific Warranty Periods, please see the Warranty Information, Section 4.

Expected Performance Life. This is the estimated period of time the product should perform satisfactorily.	
Unprinted film with no graphic protection, applied to a flat vertical outdoor surface.	8 years Unwarranted Period
3M™ MCS™ Warranty. This is the maximum period of time 3M will warrant the finished graphic performance.	
Printed white film with the best 3M ink and graphic protection option, applied to a flat, vertical, vehicle surface.	6 years Warranty Period

4. Limitations of End Uses

A. Do not use the film for these end uses

3M does not normally warrant other uses or applications, but please contact us to discuss your needs or let us suggest other 3M products.

- Non-vertical applications
- Application to corrugated surfaces or surfaces with compound curves
- Application to stainless steel for fleet applications
- Graphics exposed to petroleum products or fumes
- Thermoforming
- Backlit signage (Use one of the 3M™ Scotchcal™ Translucent Graphic Film Series instead)
- Use in Summa's SummaChrome™ or DuraChrome™ printers or similar printers

5. Compatible Products

A. Screen Printing Inks

This Bulletin provides details about the base film, **recommended construction options, warranted durability and warranty limitations for the constructions shown in the Warranted Durability Tables**. Additional specific information about compatible products can be found in the Product and Instruction Bulletins listed in **3M Related Literature** at the end of this bulletin.

- 3M™ Screen Printing Ink Series 1900 *line color only*
- 3M™ Screen Printing UV Ink Series 9800 *line color only*

B. Graphic Protection

- 3M™ Screen Printing Gloss Clear 1920DR
- 3M™ Screen Printing Matte Clear 1930
- 3M™ Screen Printing Matte Clear 9730UV
- 3M™ Screen Printing Gloss UV Clear 9800CL
- 3M™ Screen Printing Gloss UV Clear 9740i

C. Other Products

- 3M™ Prespacing Tape SCPS-2
- 3M™ Prespacing Tape SCPS-3 with HVA
- 3M™ Prespacing Tape SCPS-53X
- 3M™ Premasking Tape SCPM-3
- 3M™ Premasking Tape SCPM-44X

6. Characteristics

These are typical values for unprocessed product; processing may change the values. Contact your 3M representative for a custom specification.

A. Physical Characteristics

Characteristic	Description
Film	Cast vinyl, glossy finish
Opacity	Translucent
Thickness	Without adhesive: 2 mil (0.05 mm) With adhesive: 2.5 to 3.5 mils (0.063 to 0.09 mm)
Adhesive type	Pressure sensitive
Adhesive color	Clear
Liner	Transparent synthetic
Tensile strength	5 pound/inch at 73°F (0.9 kg/cm at 23°C) <i>minimum</i>
Adhesion 24 hours after application	ABS: 4 pounds/inch (0.7 kg/cm) Acrylic: 4 pounds/inch (0.7 kg/cm) Acrylic enamel: 4 pounds/inch (0.7 kg/cm) Fruehauf painted panels: 4 pounds/inch (0.7 kg/cm) Polycarbonate: 4 pounds/inch (0.7 kg/cm) Urethane paints: 4 pounds/inch (0.7 kg/cm) Aluminum, alodine: 8 pounds/inch (1.4 kg/cm) Chrome: 5 pounds/inch (0.9 kg/cm) Polypropylene: 3 pounds/inch (0.5 kg/cm)
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water (<i>this does not include immersion</i>)
Flammability	Flammability Test Reports on product catalog for 7725 films: ASTM E84 test report or go to the On-line Product Catalog at 3Mgraphics.com. All other test reports: call 1-800-328-3908.

B. Color Chart

Number	Color	Number	Color	Number	Color
7725-10	White	7725-46	Kelly green	7725-99	Fawn
7725-11	Pearl gray	7725-47	Intense blue	7725-103	Magenta
7725-12	Black	7725-48	Purple	7725-105	Harvest gold
7725-13	Tomato red	7725-49	Beige	7725-114	Clear
7725-14	Bright orange	7725-53	Cardinal red	7725-120	Satin aluminum
7725-15	Bright yellow	7725-54	Light orange	7725-130	Eggshell
7725-17	Vivid blue	7725-56	Dark green	7725-131	Satin gold
7725-19	Deep mahogany brown	7725-57	Olympic blue	7725-139	Saddle brown
7725-20	Matte white	7725-58	Burgundy	7725-176	Aqua
7725-22	Matte black	7725-59	Putty	7725-177	Shadow blue
7725-23	Deep red	7725-63	Geranium	7725-186	Bright green
7725-24	Terra cotta	7725-64	Apricot	7725-187	Wedgewood blue
7725-25	Sunflower	7725-66	Forest green	7725-193	Mauve
7725-27	Indigo	7725-77	Peacock blue	7725-196	Apple green
7725-29	Russet brown	7725-85	Vista yellow	7725-197	Light navy
7725-31	Medium gray	7725-86	Robin egg blue	7725-263	Perfect match red
7725-37	Sapphire blue	7725-88	Violet	7725-273	Process magenta
7725-38	Royal purple	7725-89	Sandstone	7725-276	Bottle green
7725-39	Tan	7725-90	Antique white	7725-307	Dark aqua
7725-41	Dark gray	7725-96	Teal	7725-357	Bermuda blue
		7725-98	Dark violet		

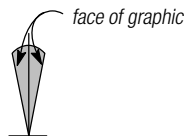
C. Application Characteristics

Characteristic	Description
Finished graphic application recommendation	<p>Graphic orientation: Vertical, non-vertical and horizontal</p> <p>Surface type: Flat with and without rivets; Simple curves</p> <p>Substrate type: Metal, glass, acrylic, polycarbonate, fiberglass, painted surfaces</p> <p>Application temperature: 50° to 100°F (10°C to 38°C) <i>air and substrate</i></p> <p>Application method: Wet</p>
Applied film shrinkage	0.010 inch (0.3 mm) <i>maximum</i>
Finished graphic exposure temperature	-40° to +225°F (-40° to +107°C)
Graphic removal	None, permanent

7. Definitions

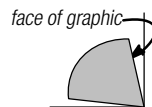
A. Exposure Types

U.S. Vertical Exposure



The face of the graphic is +/- 10° from vertical.

U.S. Non-vertical Exposure



The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal. This includes non-vertical surfaces of vehicle wraps or fleet truck and trailer graphics.

U.S. Horizontal Exposure



The face of the graphic is +/- 5° from horizontal.

U.S. Desert Southwest Exposure

Any outdoor graphic exposed to solar energy more than half of the daylight hours in Arizona, New Mexico and the desert areas of California, Nevada, Utah and Texas is subject to reduced warranties. [Click here](#) for a detailed map.

- | | | | | | | | | | |
|--------------------------------|---|---------------------|---|----------------------|---|------------|--|-----------------|--|
| B. Graphic Construction | The products used to make a graphic, which may include film and/or flexible substrate, graphic protection, ink, printer and application tape. | | | | | | | | |
| C. Graphic Protection | Overlamine films or clear coats used to protect the graphic and/or change gloss. | | | | | | | | |
| D. Graphic Types | <table border="0"> <tr> <td style="vertical-align: top;">Indoor Signs</td> <td>Stationary graphics applied indoors and <i>not</i> exposed to the elements.</td> </tr> <tr> <td style="vertical-align: top;">Outdoor Signs</td> <td>Stationary graphics applied outdoors and exposed to the elements.</td> </tr> <tr> <td style="vertical-align: top;">OEM</td> <td>Labels and decorative graphics produced for and used by original equipment manufacturers. May also be called decals.</td> </tr> <tr> <td style="vertical-align: top;">Vehicles</td> <td> <p>Vehicle. Buses, vans, passenger vehicles, delivery trucks, pickup trucks, enclosed trailers.</p> <p>Straight Trucks. Semi-Tractors and Semi-Trailers. Straight trucks, semi-tractors and semi-trailers used for commercial business purposes. Excludes air shields.</p> </td> </tr> </table> | Indoor Signs | Stationary graphics applied indoors and <i>not</i> exposed to the elements. | Outdoor Signs | Stationary graphics applied outdoors and exposed to the elements. | OEM | Labels and decorative graphics produced for and used by original equipment manufacturers. May also be called decals. | Vehicles | <p>Vehicle. Buses, vans, passenger vehicles, delivery trucks, pickup trucks, enclosed trailers.</p> <p>Straight Trucks. Semi-Tractors and Semi-Trailers. Straight trucks, semi-tractors and semi-trailers used for commercial business purposes. Excludes air shields.</p> |
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- As identified in Product Warranty Matrices*

8. Warranty Information

- | | | | | | | | | | | |
|--|--|---|---|---|-----|---|---------------|----|---|--------------|
| A. Warranty Coverage Overview | <p>The warranty coverage for each graphic is based on the user(s) both reading and following all applicable and current 3M Product and Instruction Bulletins. 3M will honor the Warranty Period stated in the base film's Product Bulletin that is current when the film was purchased. The Warranty Period may be reduced and stipulations may apply for certain constructions and applications, as covered in this Bulletin.</p> <p>The following is made in lieu of all other express or implied warranties, including any implied warranty of merchantability or fitness for a particular purpose or implied warranty arising out of a course of dealing, custom or usage of trade.</p> | | | | | | | | | |
| B. 3M Basic Product Warranty | <p>This product is warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin and as further set forth in the 3M Commercial Graphics Warranties Brochure.</p> | | | | | | | | | |
| C. Limited Remedy | <p>3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. These remedies are exclusive.</p> | | | | | | | | | |
| D. Limitation of Liability | <p>Except where prohibited by law, 3M SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO PURCHASER OR USER FOR ANY DIRECT (EXCEPT FOR THE LIMITED REMEDY PROVIDED ABOVE), INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LABOR, NON-3M MATERIAL CHARGES, LOSS OF PROFITS, REVENUE, BUSINESS, OPPORTUNITY, OR GOODWILL) RESULTING FROM OR IN ANY WAY RELATED TO SELLER'S PRODUCTS, SERVICES or THIS BULLETIN. This limitation of liability applies regardless of the legal or equitable theory under which such losses or damages are sought including breach of contract, breach of warranty, negligence, strict liability, or any other legal or equitable theory.</p> | | | | | | | | | |
| E. Additional Limitations | <p>See the 3M Commercial Graphics Warranties Brochure at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.</p> | | | | | | | | | |
| F. 3M™ MCS™ Warranty | <p>Finished graphics constructed with the materials specified and the exposure specified in the Warranty Period tables, below, are eligible for the 3M™ MCS™ Warranty. For warranties for other exposures, see Section G.(1).</p> | | | | | | | | | |
| <p>Subject to Stipulations set forth in Section G., below</p> <p>(1) Warranty Period
for Finished Graphics
in a Standard U.S. Vertical
Exposure</p> | <table border="0"> <tr> <td style="vertical-align: top;">Veh</td> <td style="vertical-align: top;">=</td> <td>Fleet, Standard and Recreational Vehicle Graphics</td> </tr> <tr> <td style="vertical-align: top;">Out</td> <td style="vertical-align: top;">=</td> <td>Outdoor Signs</td> </tr> <tr> <td style="vertical-align: top;">In</td> <td style="vertical-align: top;">=</td> <td>Indoor Signs</td> </tr> </table> | Veh | = | Fleet, Standard and Recreational Vehicle Graphics | Out | = | Outdoor Signs | In | = | Indoor Signs |
| Veh | = | Fleet, Standard and Recreational Vehicle Graphics | | | | | | | | |
| Out | = | Outdoor Signs | | | | | | | | |
| In | = | Indoor Signs | | | | | | | | |

See Warranty Period tables on the next page

Warranty Period in Years for Vertical Exposure												
Imaging	No Printing			Ink Series 1900			Ink Series 9800			Ink Series 9800 Metallic		
Graphic Type	Veh	Out	In	Veh	Out	In	Veh	Out	In	Veh	Out	In
Graphic Protection	Film Colors: 7725-10, 12, 20, 22											
1920DR, air dry	—	—	—	5	5	5	—	—	—	—	—	—
1920DR, oven dry	—	—	—	6 ■	6 ■	6 ■	—	—	—	—	—	—
1930	—	—	—	2	2	2	—	—	—	—	—	—
9740i	—	—	—	6	6	6	6	6	6	5	5	5
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None	8	7	7	—	—	—	—	—	—	—	—	—
Graphic Protection	Film Colors: 7725-114, 120, 131											
1920DR, air dry	—	—	—	5	5	5	—	—	—	—	—	—
1920DR, oven dry	—	—	—	5 ■	5 ■	5 ■	—	—	—	—	—	—
1930	—	—	—	2	2	2	—	—	—	—	—	—
9740i	—	—	—	5	5	5	5	5	5	5	5	5
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None	5	5	5	—	—	—	—	—	—	—	—	—
Graphic Protection	Film Colors: All other colors of film series 7725											
1920DR, air dry	—	—	—	5	5	5	—	—	—	—	—	—
1920DR, oven dry	—	—	—	6 ■	6 ■	6 ■	—	—	—	—	—	—
1930	—	—	—	2	2	2	—	—	—	—	—	—
9720i	—	—	—	6	6	6	6	6	6	5	5	5
9720UV	—	—	—	6	6	6	6	6	6	5	5	5
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None	6	6	6	—	—	—	—	—	—	—	—	—

■ Warranty requires oven drying the last color of ink series 1900 and clear 1920DR for 2 hours at 150°F (65°C)

(2) Legibility Warranty

For Fleet Graphics ONLY for
Horizontal Exposure and
Selected Constructions

Applications subjected to maximum sunlight and environmental conditions used on rooftops of commercially-owned fleet vehicles where identification from the air is needed are warranted for legibility only for the following constructions. The graphic will change color, lose gloss and chalk, which is not covered by warranty.

		Warranty Period for Legibility, in Years	
Film Colors: 10, 11, 12, 13, 14, 15, 20, 22, 53		Horizontal Exposure	
Ink Series	Graphic Protection	U.S.	U.S. Desert Southwest
No printing	None	5	3

G. General Warranty Stipulations for 3M™ MCS™ Warranty

(1) Reduced Warranty Period for Non-vertical Graphics

These stipulations apply to the 3M™ MCS™ Warranty. General provisions for these stipulations are covered in the [3M Commercial Graphics Warranty Brochure](#) at 3Mgraphics.com.

For other graphic exposures, multiply the Warranty Period (in years) for your graphic construction as shown in the applicable Warranty Period tables, Section F.(1), by the percentage shown for the intended graphic exposure. See page 3 for the graphic exposure definitions.

If the Graphic Exposure is:	Use this Percentage of U.S. Vertical Exposure, Warranted Durability	Calculation Examples Based on Indoor Warranty Periods
U.S. Non-vertical	50% (0.5)	0.5 x 5 years = 2.5 years 0.5 x 8 years = 4.0 years
Desert Southwest Vertical	70% (0.7)	0.7 x 5 years = 3.5 years 0.7 x 8 years = 5.4 years
Desert Southwest Non-vertical	35% (0.35)	0.35 x 5 years = 1.75 years 0.35 x 8 years = 2.7 years
Horizontal	0%	0

(2) Opacity

This film can be used on opaque surfaces but has less hiding power than a film with a colored adhesive. Consider this characteristic when selecting and preparing the substrate.

(3) Abrasion and Loss of Gloss

Abrasion damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear. However, to help maintain the appearance of your graphic, use the recommended graphic protection whenever:

- it is required for the construction and end use as shown in the Warranty Period tables.
- the graphic, **including printed vehicle graphics**, is exposed to abrasive conditions, harsh cleaners or chemicals.

(4) Application to Glass

3M accepts no liability for glass breakage when using this film for window graphics. See Instruction Bulletin 5.1 for details.

(5) Application Outside the U.S.

Contact the 3M organization for that country.

(6) Graphics Made with Components Not Sold or Recommended by 3M

The **3M™ MCS™ Warranty** does not, under any circumstances, cover graphics made with inks, film, graphic protection and/or application tapes that are not sold or recommended by 3M.

The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include any non recommended or qualified products.

(7) Printed Vehicle Graphics

Screen printed vehicle graphics require a clear to be warranted

(8) Harsh Washing

Graphics exposed to abrasive washing conditions, harsh cleaners or chemicals are not warranted.

(9) Clears that Haze

Clears 1930 and 9730UV may haze, which is not covered by the warranty.

(10) Chalking

Chalking for unprinted film colors 20, 263, 273 and 286 as they age is considered normal and acceptable wear. Chalking can be removed by normal graphic cleaning methods.

9. Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by all of the following.

- Correct combination of 3M-recommended graphics products
- Ink formulation (screen printing)
- Adequate ink drying and/or UV curing
- Selection and preparation of the substrate
- Surface texture
- Application methods
- Angle and direction of sun exposure
- Environmental conditions
- Cleaning or maintenance methods

10. Graphics Manufacturing



CAUTION

Before using any equipment, follow the manufacturers' instructions for safe operation.

A. Thermal Transfer Printing

Formulations and processing conditions can affect ink durability. Refer to the Product and Instruction Bulletins for your ink for limitations and proper usage.

This film can be imaged with narrow width thermal transfer printing systems. Refer to the equipment manufacturer's literature for details.

B. Screen Printing

Refer to the ink's Product and Instruction Bulletins.

C. Cutting

Based on cutting and weeding evaluations that used Helvetica medium upper case, the recommended minimum cutting height for text is 0.25 inch (0.64 cm). Because of the differences in electronically-controlled cutting equipment and font characteristics, users should determine their own cutting and weeding capability.

These factors can affect cutting quality and ability:

- **Sharpness of the knife blade.** Dull blades create a serrated look to the cut edge of the film.
- **Weight on the knife blade.** The ideal weight slightly scores the liner. Too little weight does not cut completely through the film and the adhesive. Excessive weight cuts the liner. It also causes the blade to drag, accelerating wear and eventually creating a serrated cut edge on the film.
- Temperature and relative humidity are minor considerations, but avoid extreme or rapidly fluctuating conditions.
- Store the film in the same environment as the cutting equipment.
- Consider the stroke width of characters, style of serifs or extensions, and small details of scanned or digitized artwork.
- The minimum recommended stroke width is 0.040 inch (1.0 mm) when film is exposed to cleaning or other physical stress.

D. Weeding

The excess film should be weeded (removed) as soon after cutting as practical. This is to minimize the effect of possible adhesive flow 24 or more hours after cutting.

E. Application Tapes

The application tape to use depends on the type of graphic produced. See Instruction Bulletin 4.3 for more details.

Note: When using prespacing tape with film series 7725, do not use a Heat Vacuum Applicator to try improve adhesion to the liner. Doing so can cause problems when removing the film liner.

(1) When to Use Premasking Tape

- As an application aid to increase stiffness, and prevent stretching and damage during application.
- When little or no liner is exposed.

(2) **When to Use
Prespacing Tape**

- Hold cut and weeded letters or graphics in registration after removing the film liner.
- Protect cut graphic parts from scratching or damage during application.
- Use when large amounts of liner are exposed.

(3) **Use This Tape**

Determine whether you want to premask the graphic or prespace cut pieces of film such as letters. Then locate the graphic protection used on your graphic in the table below, and use the corresponding tape. See Instruction Bulletin 4.3 for complete details.

EXAMPLE: To premask a film that includes clear 1920DR, use premasking tape SCPM-3.

Application Tape	Graphic Protection			
	Refer to the Warranty tables to determine whether the Graphic Protection option listed is approved for the ink series you are using with these films.			
	1920DR 1930	9730UV 9740i 9800CL	Ink 9800, no clear	Unprinted film
Premasking SCPM-3 with HVA use for prespacing	■			■
Premasking SCPM-3	■			■
Premasking SCPM-44X		■	■	
Premasking SCPM-53X		■	■	
Prespacing SCPS-2	■			■

11. Shelf Life, Storage and Shipping

A. Shelf Life

Total shelf life: 3 years from the date of manufacture on the original box.

If you do process the film, do so within 2 years and apply within 1 year.

If you do not process the film, apply it within 3 years.

B. Storage Conditions

- 40° to 100°F (4° to 38°C)
- Out of sunlight
- Clean dry area
- Original container
- Bring the film to print room temperature before using

C. Shipping Finished Graphics

Flat (may be separated by paper), or rolled printed side out on 5 inch (13 cm) or larger core. This helps prevent the liner and, if used, the application tape from popping off.

12. Health and Safety



CAUTION

When handling any chemical products, read the manufacturers' container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information. To obtain MSDS sheets for 3M products go to [3M.com/MSDS](https://www.3m.com/MSDS), or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturers' instructions for safe operation.

13. 3M Related Literature

Before starting any job, be sure you have the most current Product and Instruction Bulletins.

The information in 3M Product and Instruction Bulletins is subject to change. Current Bulletins are available at 3Mgraphics.com. The following applicable Bulletins provide information and processes you need to properly make the graphics described in this Bulletin. Additional Bulletins may be needed as indicated in the 3M Related Literature section of other 3M components you use.

Bulletin types: PB = Product Bulletin; PB-IB = Product & Instruction Bulletin; IB = Instruction Bulletin

Subject	Type	Bulletin No.
3M™ Scotchcal™ Translucent Graphic Film Series 3630	PB	3630
3M™ Screen Printing Ink Series 1900 and Overprint Clear VIO402	PB	1900
Screen printing with ink series 1900 - line color	IB	3.12
- 4-color	IB	3.11
3M™ Screen Printing UV Ink Series 9800	PB	9800
Screen printing with UV ink series 9800 - line color	IB	3.20
- 4-color	IB	3.21
3M™ Screen Print UV Clears	PB-IB	UV Clears
Design of graphics	IB	2.1
Using 3M application tapes; premasking and prespacing for films	IB	4.3
Application, substrate selection, preparation and substrate-specific application techniques	IB	5.1
Application, general procedures for indoor and outdoor dry applications	IB	5.5
Application, wet method for translucent screen printed, thermal mass transfer and cut graphics	IB	5.7
Storage, handling, maintenance, removal	IB	6.5
3M Commercial Graphics Warranty Brochure		www.3Mgraphics.com. Warranties

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14. Bulletin Change Summary

Modified and new content is marked with a black bar in the margin. A Performance Overview summary was added to page 1. The Flammability information under Section 6.A has been updated. The Warranty Information section has been updated to more clearly reflect important details of the warranties that cover the 3M products mentioned in this Bulletin. 3M™ Panaflex™ Awning and Sign Facing Series 945GPS has been discontinued. There is no direct replacement at this time. Screen Print UV Clears 9720UV and 9720i have been directly replaced by 3M™ Screen Print UV Clear 9740i. Color 173 Salmon Pink has been discontinued.



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General 787-620-3000
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EXHIBIT A - PRICING PAGES

Quantities listed in this RFQ are approximations only. It is understood and agreed that the contract shall cover the quantities actually ordered for delivery during the term of the contract, whether more or less than the quantities shown. Award will be based on lowest total cost.

SECTION I: Transfer Films								
Contract Item Number	Estimated Quantity	Item Description	Overage Preferences	Manufacturer Product Code	Unit Cost	Extended Total Amount (Qty x Unit Cost)	UNSPSC Commodity Code	DOH Inventory Subcode
1	1	Transfer Tape, Low Tack, 2 inch x 100 yds.	NA	TPM-5	12.5000	\$ 12.50	55121734	-
2	1	Transfer Tape, Low Tack, 3 inch x 100 yds.	NA	TPM-5	18.7500	\$ 18.75	55121734	-
3	1	Transfer Tape, Low Tack, 12 inch x 100 yds.	NA	TPM-5	75.0000	\$ 75.00	55121734	-
4	1	Transfer Tape, Low Tack, 15 inch x 100 yds.	NA	TPM-5	93.7500	\$ 93.75	55121734	-
5	6	Transfer Tape, Low Tack, 18 inch x 100 yds.	NA	TPM-5	112.5000	\$ 675.00	55121734	-
6	5	Transfer Tape, Low Tack, 24 inch x 100 yds.	NA	TPM-5	150.0000	\$ 750.00	55121734	-
7	19	Transfer Tape, Low Tack, 30 inch x 100 yds.	NA	TPM-5	187.5000	\$ 3,562.50	55121734	-
8	6	Transfer Tape, Low Tack, 36 inch x 100 yds.	NA	TPM-5	225.0000	\$ 1,350.00	55121734	-
9	1	Transfer Tape, Low Tack, 42 inch x 100 yds.	NA	TPM-5	262.5000	\$ 262.50	55121734	-
10	7	Transfer Tape, Low Tack, 48 inch x 100 yds.	NA	TPM-5	300.0000	\$ 2,100.00	55121734	-
SECTION II: Type ASTM-I Retroreflective Sheeting								
Contract Item Number	Estimated Quantity	Item Description	Overage Preferences	Manufacturer Product Code	Unit Cost	Extended Total Amount (Qty x Unit Cost)	UNSPSC Commodity Code	DOH Inventory Subcode
11	1	Type ASTM-I Sheeting, 15 inch x 50 yds., White	1/16" min. overage preferred	3M 3430	127.5000	\$ 127.50	55121734	111015
12	1	Type ASTM-I Sheeting, 15 inch x 50 yds., Yellow	1/16" min. overage preferred	3M 3431	127.5000	\$ 127.50	55121734	112015
13	1	Type ASTM-I Sheeting, 18-1/2 inch x 50 yds., White	-	3M 3430	157.2500	\$ 157.25	55121734	-
14	1	Type ASTM-I Sheeting, 18-1/2 inch x 50 yds., Yellow	-	3M 3431	157.2500	\$ 157.25	55121734	112018
15	1	Type ASTM-I Sheeting, 21 inch x 50 yds., White	1/16" min. overage preferred	3M 3430	178.5000	\$ 178.50	55121734	111021
16	1	Type ASTM-I Sheeting, 21 inch x 50 yds., Yellow	1/16" min. overage preferred	3M 3431	178.5000	\$ 178.50	55121734	-
17	8	Type ASTM-I Sheeting, 24-1/2 inch x 50 yds., White	-	3M 3430	208.2500	\$ 1,666.00	55121734	111024
18	1	Type ASTM-I Sheeting, 24-1/2 inch x 50 yds., Yellow	-	3M 3431	208.2500	\$ 208.25	55121734	112024
19	46	Type ASTM-I Sheeting, 30-1/2 inch x 50 yds., White	-	3M 3430	259.2500	\$ 11,925.50	55121734	111030
20	2	Type ASTM-I Sheeting, 30-1/2 inch x 50 yds., Yellow	-	3M 3431	259.2500	\$ 518.50	55121734	112030
21	4	Type ASTM-I Sheeting, 36 inch x 50 yds., White	5/16" min. overage preferred	3M 3430	306.0000	\$ 1,224.00	55121734	111036
22	1	Type ASTM-I Sheeting, 36 inch x 50 yds., Yellow	5/16" min. overage preferred	3M 3431	306.0000	\$ 306.00	55121734	112036
23	1	Type ASTM-I Sheeting, 42 inch x 50 yds., White	5/16" min. overage preferred	3M 3430	357.0000	\$ 357.00	55121734	-
24	1	Type ASTM-I Sheeting, 42 inch x 50 yds., Yellow	5/16" min. overage preferred	3M 3431	357.0000	\$ 357.00	55121734	-
25	5	Type ASTM-I Sheeting, 48 inch x 50 yds., White	7/16" min. overage preferred	3M 3430	408.0000	\$ 2,040.00	55121734	111048
26	1	Type ASTM-I Sheeting, 48 inch x 50 yds., Yellow	7/16" min. overage preferred	3M 3431	408.0000	\$ 408.00	55121734	112048
27	1	Type ASTM-I Sheeting, 1/2 inch x 50 yds., White	-	3M 3430	4.2500	\$ 4.25	55121734	111050
28	1	Type ASTM-I Sheeting, 1/2 inch x 50 yds., Yellow	-	3M 3431	4.2500	\$ 4.25	55121734	112050
29	1	Type ASTM-I Sheeting, 1 inch x 50 yds., White	-	3M 3430	8.5000	\$ 8.50	55121734	111100
30	1	Type ASTM-I Sheeting, 1 inch x 50 yds., Yellow	-	3M 3431	8.5000	\$ 8.50	55121734	112100
31	1	Type ASTM-I Sheeting, 15 inch x 50 yds., Blue	1/16" min. overage preferred	3M 3435	127.5000	\$ 127.50	55121734	115015

32	1	Type ASTM-I Sheeting, 18-1/2 inch x 50 yds., Blue	-	3M 3435	157.2500	\$ 157.25	55121734	-
33	1	Type ASTM-I Sheeting, 21 inch x 50 yds., Blue	1/16" min. overage preferred	3M 3435	178.5000	\$ 178.50	55121734	-
34	2	Type ASTM-I Sheeting, 24-1/2 inch x 50 yds., Blue	-	3M 3435	208.2500	\$ 416.50	55121734	115024
35	1	Type ASTM-I Sheeting, 30-1/2 inch x 50 yds., Blue	-	3M 3435	259.2500	\$ 259.25	55121734	115030
36	1	Type ASTM-I Sheeting, 36 inch x 50 yds., Blue	3/16" min. overage preferred	3M 3435	306.0000	\$ 306.00	55121734	115036
37	1	Type ASTM-I Sheeting, 42 inch x 50 yds., Blue	5/16" min. overage preferred	3M 3435	357.0000	\$ 357.00	55121734	-
38	1	Type ASTM-I Sheeting, 48 inch x 50 yds., Blue	7/16" min. overage preferred	3M 3435	408.0000	\$ 408.00	55121734	115048
SECTION III: Type ASTM-IV Retroreflective Sheeting								
Contract Item Number	Estimated Quantity	Item Description	Overage Preferences	Manufacturer Product Code	Unit Cost	Extended Total Amount (Qty x Unit Cost)	UNSPSC Commodity Code	DOH Inventory Subcode
39	1	Type ASTM-IV Sheeting, 1/2 inch x 50 yds., White	-	3930	4.8100	\$ 4.81	55121734	211050
40	1	Type ASTM-IV Sheeting, 1/2 inch x 50 yds., Yellow	-	3931	4.8100	\$ 4.81	55121734	-
41	1	Type ASTM-IV Sheeting, 1 inch x 50 yds., White	-	3930	9.6300	\$ 9.63	55121734	211100
42	1	Type ASTM-IV Sheeting, 1 inch x 50 yds., Yellow	-	3931	9.6300	\$ 9.63	55121734	-
43	1	Type ASTM-IV Sheeting, 12-3/4 inch x 100 yds., White	-	3930	245.4400	\$ 245.44	55121734	211012
44	1	Type ASTM-IV Sheeting, 12-3/4 inch x 100 yds., Yellow	-	3931	245.4400	\$ 245.44	55121734	212012
45	22	Type ASTM-IV Sheeting, 12-3/4 inch x 100 yds., Blue	-	3935	245.4400	\$ 5,399.68	55121734	215012
46	17	Type ASTM-IV Sheeting, 12-3/4 inch x 100 yds., Green	-	3937	245.4400	\$ 4,172.48	55121734	214012
47	1	Type ASTM-IV Sheeting, 12-3/4 inch x 100 yds., Brown	-	3939	245.4400	\$ 245.44	55121734	2016012
48	1	Type ASTM-IV Sheeting, 15 inch x 50 yds., White	1/16" min. overage preferred	3930	144.3800	\$ 144.38	55121734	211015
49	1	Type ASTM-IV Sheeting, 15 inch x 50 yds., Yellow	1/16" min. overage preferred	3931	144.3800	\$ 144.38	55121734	-
50	1	Type ASTM-IV Sheeting, 15 inch x 50 yds., Blue	1/16" min. overage preferred	3935	144.3800	\$ 144.38	55121734	215015
51	1	Type ASTM-IV Sheeting, 15 inch x 50 yds., Green	1/16" min. overage preferred	3937	144.3800	\$ 144.38	55121734	-
52	1	Type ASTM-IV Sheeting, 15 inch x 50 yds., Brown	1/16" min. overage preferred	3939	144.3800	\$ 144.38	55121734	-
53	13	Type ASTM-IV Sheeting, 18-1/2 inch x 50 yds., White	-	3930	178.0600	\$ 2,314.78	55121734	211018
54	1	Type ASTM-IV Sheeting, 18-1/2 inch x 50 yds., Yellow	-	3931	178.0600	\$ 178.06	55121734	212018
55	1	Type ASTM-IV Sheeting, 18-1/2 inch x 50 yds., Blue	-	3935	178.0600	\$ 178.06	55121734	-
56	1	Type ASTM-IV Sheeting, 18-1/2 inch x 50 yds., Green	-	3937	178.0600	\$ 178.06	55121734	-
57	1	Type ASTM-IV Sheeting, 18-1/2 inch x 50 yds., Brown	-	3939	178.0600	\$ 178.06	55121734	-
58	1	Type ASTM-IV Sheeting, 21 inch x 50 yds., White	1/16" min. overage preferred	3930	202.1300	\$ 202.13	55121734	211021
59	1	Type ASTM-IV Sheeting, 21 inch x 50 yds., Yellow	1/16" min. overage preferred	3931	202.1300	\$ 202.13	55121734	-
60	1	Type ASTM-IV Sheeting, 21 inch x 50 yds., Blue	1/16" min. overage preferred	3935	202.1300	\$ 202.13	55121734	-
61	1	Type ASTM-IV Sheeting, 21 inch x 50 yds., Green	1/16" min. overage preferred	3937	202.1300	\$ 202.13	55121734	-
62	1	Type ASTM-IV Sheeting, 21 inch x 50 yds., Brown	1/16" min. overage preferred	3939	202.1300	\$ 202.13	55121734	-
63	27	Type ASTM-IV Sheeting, 24-1/2 inch x 50 yds., White	-	3930	235.8100	\$ 6,366.87	55121734	211024
64	11	Type ASTM-IV Sheeting, 24-1/2 inch x 50 yds., Yellow	-	3931	235.8100	\$ 2,593.91	55121734	212024
65	1	Type ASTM-IV Sheeting, 24-1/2 inch x 50 yds., Blue	-	3935	235.8100	\$ 235.81	55121734	-
66	1	Type ASTM-IV Sheeting, 24-1/2 inch x 50 yds., Green	-	3937	235.8100	\$ 235.81	55121734	-

67	1	Type ASTM-IV Sheeting, 24-1/2 inch x 50 yds., Brown	-	3939	235.8100	\$ 235.81	55121734	216024
68	1	Type ASTM-IV Sheeting, 24-1/2 inch x 50 yds., Red	-	3932	235.8100	\$ 235.81	55121734	217024
69	73	Type ASTM-IV Sheeting, 30-1/2 inch x 50 yds., White	-	3930	293.5000	\$ 21,425.50	55121734	211030
70	49	Type ASTM-IV Sheeting, 30-1/2 inch x 50 yds., Yellow	-	3931	293.5000	\$ 14,381.50	55121734	212030
71	1	Type ASTM-IV Sheeting, 30-1/2 inch x 50 yds., Blue	-	3935	293.5000	\$ 293.50	55121734	215030
72	1	Type ASTM-IV Sheeting, 30-1/2 inch x 50 yds., Green	-	3937	293.5000	\$ 293.50	55121734	214030
73	1	Type ASTM-IV Sheeting, 30-1/2 inch x 50 yds., Brown	-	3939	293.5000	\$ 293.50	55121734	216030
74	16	Type ASTM-IV Sheeting, 36 inch x 50 yds., White	3/16" min. overage preferred	3930	346.5000	\$ 5,544.00	55121734	211036
75	20	Type ASTM-IV Sheeting, 36 inch x 50 yds., Yellow	3/16" min. overage preferred	3931	346.5000	\$ 6,930.00	55121734	212036
76	1	Type ASTM-IV Sheeting, 36 inch x 50 yds., Blue	3/16" min. overage preferred	3935	346.5000	\$ 346.50	55121734	215036
77	1	Type ASTM-IV Sheeting, 36 inch x 50 yds., Green	3/16" min. overage preferred	3937	346.5000	\$ 346.50	55121734	214036
78	1	Type ASTM-IV Sheeting, 36 inch x 50 yds., Brown	3/16" min. overage preferred	3939	346.5000	\$ 346.50	55121734	-
79	14	Type ASTM-IV Sheeting, 42 inch x 50 yds., White	5/16" min. overage preferred	3930	404.2500	\$ 5,659.50	55121734	211042
80	1	Type ASTM-IV Sheeting, 42 inch x 50 yds., Yellow	5/16" min. overage preferred	3931	404.2500	\$ 404.25	55121734	212042
81	1	Type ASTM-IV Sheeting, 42 inch x 50 yds., Blue	5/16" min. overage preferred	3935	404.2500	\$ 404.25	55121734	215042
82	1	Type ASTM-IV Sheeting, 42 inch x 50 yds., Green	5/16" min. overage preferred	3937	404.2500	\$ 404.25	55121734	214042
83	1	Type ASTM-IV Sheeting, 42 inch x 50 yds., Brown	5/16" min. overage preferred	3939	404.2500	\$ 404.25	55121734	-
84	15	Type ASTM-IV Sheeting, 48 inch x 50 yds., White	7/16" min. overage preferred	3930	462.0000	\$ 6,930.00	55121734	211048
85	6	Type ASTM-IV Sheeting, 48 inch x 50 yds., Yellow	7/16" min. overage preferred	3931	462.0000	\$ 2,772.00	55121734	212048
86	1	Type ASTM-IV Sheeting, 48 inch x 50 yds., Blue	7/16" min. overage preferred	3935	462.0000	\$ 462.00	55121734	215048
87	1	Type ASTM-IV Sheeting, 48 inch x 50 yds., Green	7/16" min. overage preferred	3937	462.0000	\$ 462.00	55121734	214048
88	1	Type ASTM-IV Sheeting, 48 inch x 50 yds., Brown	7/16" min. overage preferred	3939	462.0000	\$ 462.00	55121734	216048

SECTION IV : Type ASTM-XI Retroreflective Sheeting

Contract Item Number	Estimated Quantity	Item Description	Overage Preferences	Manufacturer Product Code	Unit Cost	Extended Total Amount (Qty x Unit Cost)	UNSPSC Commodity Code	DOH Inventory Subcode
89	1	Type ASTM-XI Sheeting, 9 inch x 100 yds., Fluorescent Yellow Green	-	4083	447.7500	\$ 447.75	55121734	612409
90	1	Type ASTM-XI Sheeting, 12 inch x 100 yds., White	-	4090	597.0000	\$ 597.00	55121734	611012
91	1	Type ASTM-XI Sheeting, 12 inch x 100 yds., Fluorescent Yellow	-	4081	597.0000	\$ 597.00	55121734	612012
92	10	Type ASTM-XI Sheeting, 12-3/4 inch x 100 yds., White	-	4090	634.3100	\$ 6,343.10	55121734	611012
93	20	Type ASTM-XI Sheeting, 12-3/4 inch x 100 yds., Blue	-	4095	634.3100	\$ 12,686.20	55121734	-
94	20	Type ASTM-XI Sheeting, 12-3/4 inch x 100 yds., Green	-	4097	634.3100	\$ 12,686.20	55121734	614012
95	1	Type ASTM-XI Sheeting, 12-3/4 inch x 100 yds., Fluorescent Orange	-	4084	634.3100	\$ 634.31	55121734	613012
96	1	Type ASTM-XI Sheeting, 12-3/4 inch x 100 yds., Fluorescent Yellow	-	4081	634.3100	\$ 634.31	55121734	612012
97	1	Type ASTM-XI Sheeting, 12-3/4 inch x 100 yds., Fluorescent Yellow Green	-	4083	634.3100	\$ 634.31	55121734	612412
98	1	Type ASTM-XI Sheeting, 15 inch x 50 yds., White	1/16" min. overage preferred	4090	373.1300	\$ 373.13	55121734	-
99	1	Type ASTM-XI Sheeting, 15 inch x 50 yds., Blue	1/16" min. overage preferred	4095	373.1300	\$ 373.13	55121734	-

100	1	Type ASTM-XI Sheeting, 15 inch x 50 yds., Green	1/16" min. overage preferred	4097	373.1300	\$ 373.13	55121734	-
101	1	Type ASTM-XI Sheeting, 15 inch x 50 yds., Fluorescent Orange	1/16" min. overage preferred	4084	373.1300	\$ 373.13	55121734	-
102	1	Type ASTM-XI Sheeting, 15 inch x 50 yds., Fluorescent Yellow	1/16" min. overage preferred	4081	373.1300	\$ 373.13	55121734	-
103	1	Type ASTM-XI Sheeting, 15 inch x 50 yds., Fluorescent Yellow Green	1/16" min. overage preferred	4083	373.1300	\$ 373.13	55121734	-
104	1	Type ASTM-XI Sheeting, 18-1/2 inch x 50 yds., White	-	4090	460.1900	\$ 460.19	55121734	611018
105	1	Type ASTM-XI Sheeting, 18-1/2 inch x 50 yds., Blue	-	4095	460.1900	\$ 460.19	55121734	-
106	1	Type ASTM-XI Sheeting, 18-1/2 inch x 50 yds., Green	-	4097	460.1900	\$ 460.19	55121734	-
107	4	Type ASTM-XI Sheeting, 18-1/2 inch x 50 yds., Fluorescent Orange	-	4084	460.1900	\$ 1,840.76	55121734	613018
108	1	Type ASTM-XI Sheeting, 18-1/2 inch x 50 yds., Fluorescent Yellow	-	4081	460.1900	\$ 460.19	55121734	612018
109	1	Type ASTM-XI Sheeting, 18-1/2 inch x 50 yds., Fluorescent Yellow Green	-	4083	460.1900	\$ 460.19	55121734	612418
110	1	Type ASTM-XI Sheeting, 21 inch x 50 yds., White	1/16" min. overage preferred	4090	522.3800	\$ 522.38	55121734	-
111	1	Type ASTM-XI Sheeting, 21 inch x 50 yds., Blue	1/16" min. overage preferred	4095	522.3800	\$ 522.38	55121734	-
112	1	Type ASTM-XI Sheeting, 21 inch x 50 yds., Green	1/16" min. overage preferred	4097	522.3800	\$ 522.38	55121734	-
113	1	Type ASTM-XI Sheeting, 21 inch x 50 yds., Fluorescent Orange	1/16" min. overage preferred	4084	522.3800	\$ 522.38	55121734	-
114	1	Type ASTM-XI Sheeting, 21 inch x 50 yds., Fluorescent Yellow	1/16" min. overage preferred	4081	522.3800	\$ 522.38	55121734	-
115	1	Type ASTM-XI Sheeting, 21 inch x 50 yds., Fluorescent Yellow Green	1/16" min. overage preferred	4083	522.3800	\$ 522.38	55121734	-
116	1	Type ASTM-XI Sheeting, 24-1/2 inch x 50 yds., White	-	4090	609.4400	\$ 609.44	55121734	611024
117	1	Type ASTM-XI Sheeting, 24-1/2 inch x 50 yds., Blue	-	4095	609.4400	\$ 609.44	55121734	-
118	1	Type ASTM-XI Sheeting, 24-1/2 inch x 50 yds., Green	-	4097	609.4400	\$ 609.44	55121734	-
119	4	Type ASTM-XI Sheeting, 24-1/2 inch x 50 yds., Fluorescent Orange	-	4084	609.4400	\$ 2,437.76	55121734	613024
120	14	Type ASTM-XI Sheeting, 24-1/2 inch x 50 yds., Fluorescent Yellow	-	4081	609.4400	\$ 8,532.16	55121734	612024
121	1	Type ASTM-XI Sheeting, 24-1/2 inch x 50 yds., Fluorescent Yellow Green	-	4083	609.4400	\$ 609.44	55121734	612424
122	1	Type ASTM-XI Sheeting, 30-1/2 inch x 50 yds., White	-	4090	758.6900	\$ 758.69	55121734	-
123	1	Type ASTM-XI Sheeting, 30-1/2 inch x 50 yds., Blue	-	4095	758.6900	\$ 758.69	55121734	-
124	1	Type ASTM-XI Sheeting, 30-1/2 inch x 50 yds., Green	-	4097	758.6900	\$ 758.69	55121734	-
125	2	Type ASTM-XI Sheeting, 30-1/2 inch x 50 yds., Fluorescent Orange	-	4084	758.6900	\$ 1,517.38	55121734	613030
126	6	Type ASTM-XI Sheeting, 30-1/2 inch x 50 yds., Fluorescent Yellow	-	4081	758.6900	\$ 4,552.14	55121734	612030
127	7	Type ASTM-XI Sheeting, 30-1/2 inch x 50 yds., Fluorescent Yellow Green	-	4083	758.6900	\$ 5,310.83	55121734	612430
128	1	Type ASTM-XI Sheeting, 36 inch x 50 yds., White	3/16" min. overage preferred	4090	895.5000	\$ 895.50	55121734	611036
129	1	Type ASTM-XI Sheeting, 36 inch x 50 yds., Blue	5/16" min. overage preferred	4095	895.5000	\$ 895.50	55121734	-

130	1	Type ASTM-XI Sheeting, 36 inch x 50 yds., Green	5/16" min. overage preferred	4097	895.5000	\$ 895.50	55121734	-
131	2	Type ASTM-XI Sheeting, 36 inch x 50 yds., Fluorescent Orange	3/16" min. overage preferred	4084	895.5000	\$ 1,791.00	55121734	613036
132	22	Type ASTM-XI Sheeting, 36 inch x 50 yds., Fluorescent Yellow	5/16" min. overage preferred	4081	895.5000	\$ 19,701.00	55121734	612036
133	1	Type ASTM-XI Sheeting, 36 inch x 50 yds., Fluorescent Yellow Green	5/16" min. overage preferred	4083	895.5000	\$ 895.50	55121734	612436
134	1	Type ASTM-XI Sheeting, 42 inch x 50 yds., White	5/16" min. overage preferred	4090	1044.7500	\$ 1,044.75	55121734	-
135	1	Type ASTM-XI Sheeting, 42 inch x 50 yds., Blue	5/16" min. overage preferred	4095	1044.7500	\$ 1,044.75	55121734	-
136	1	Type ASTM-XI Sheeting, 42 inch x 50 yds., Green	5/16" min. overage preferred	4097	1044.7500	\$ 1,044.75	55121734	-
137	1	Type ASTM-XI Sheeting, 42 inch x 50 yds., Fluorescent Orange	5/16" min. overage preferred	4084	1044.7500	\$ 1,044.75	55121734	-
138	1	Type ASTM-XI Sheeting, 42 inch x 50 yds., Fluorescent Yellow	5/16" min. overage preferred	4081	1044.7500	\$ 1,044.75	55121734	-
139	1	Type ASTM-XI Sheeting, 42 inch x 50 yds., Fluorescent Yellow Green	5/16" min. overage preferred	4083	1044.7500	\$ 1,044.75	55121734	-
140	11	Type ASTM-XI Sheeting, 48 inch x 50 yds., White	7/16" min. overage preferred	4090	1194.0000	\$ 13,134.00	55121734	611048
141	2	Type ASTM-XI Sheeting, 48 inch x 50 yds., Blue	7/16" min. overage preferred	4095	1194.0000	\$ 2,388.00	55121734	-
142	2	Type ASTM-XI Sheeting, 48 inch x 50 yds., Green	7/16" min. overage preferred	4097	1194.0000	\$ 2,388.00	55121734	-
143	25	Type ASTM-XI Sheeting, 48 inch x 50 yds., Fluorescent Orange	7/16" min. overage preferred	4084	1194.0000	\$ 29,850.00	55121734	613048
144	8	Type ASTM-XI Sheeting, 48 inch x 50 yds., Fluorescent Yellow	7/16" min. overage preferred	4081	1194.0000	\$ 9,552.00	55121734	612048
145	11	Type ASTM-XI Sheeting, 48 inch x 50 yds., Fluorescent Yellow Green	7/16" min. overage preferred	4083	1194.0000	\$ 13,134.00	55121734	612448
SECTION V : Type ASTM-I, ASTM-IV, and Type ASTM-XI Retroreflective Sheeting Matched Components								
Contract Item Number	Estimated Quantity	Item Description	Overage Preferences	Manufacturer Product Code	Unit Cost	Extended Total Amount (Qty x Unit Cost)	UNSPSC Commodity Code	DOH Inventory Subcode
146	1	Transparent film, Acrylic, 12 inch x 50 yds., Yellow	NA	1171	103.5000	\$ 103.50	55121734	-
147	1	Transparent film, Acrylic, 12 inch x 50 yds., Red	NA	1172	103.5000	\$ 103.50	55121734	-
148	1	Transparent film, Acrylic, 12 inch x 50 yds., Blue	NA	1175	103.5000	\$ 103.50	55121734	-
149	1	Transparent film, Acrylic, 12 inch x 50 yds., Green	NA	1177	103.5000	\$ 103.50	55121734	-
150	1	Transparent film, Acrylic, 12 inch x 50 yds., Brown	NA	1179	103.5000	\$ 103.50	55121734	-
151	1	Transparent film, Acrylic, 15 inch x 50 yds., Yellow	NA	1171	129.3800	\$ 129.38	55121734	-
152	1	Transparent film, Acrylic, 15 inch x 50 yds., Red	NA	1172	129.3800	\$ 129.38	55121734	-
153	1	Transparent film, Acrylic, 15 inch x 50 yds., Blue	NA	1175	129.3800	\$ 129.38	55121734	-
154	1	Transparent film, Acrylic, 15 inch x 50 yds., Green	NA	1177	129.3800	\$ 129.38	55121734	-
155	1	Transparent film, Acrylic, 15 inch x 50 yds., Brown	NA	1179	129.3800	\$ 129.38	55121734	-
156	1	Transparent film, Acrylic, 18 inch x 50 yds., Yellow	NA	1171	155.2500	\$ 155.25	55121734	-
157	1	Transparent film, Acrylic, 18 inch x 50 yds., Red	NA	1172	155.2500	\$ 155.25	55121734	-
158	1	Transparent film, Acrylic, 18 inch x 50 yds., Blue	NA	1175	155.2500	\$ 155.25	55121734	-
159	1	Transparent film, Acrylic, 18 inch x 50 yds., Green	NA	1177	155.2500	\$ 155.25	55121734	904018
160	1	Transparent film, Acrylic, 18 inch x 50 yds., Brown	NA	1179	155.2500	\$ 155.25	55121734	906018

161	1	Transparent film, Acrylic, 24 inch x 50 yds., Yellow	NA	1171	207.0000	\$ 207.00	55121734	902024
162	1	Transparent film, Acrylic, 24 inch x 50 yds., Red	NA	1172	207.0000	\$ 207.00	55121734	907024
163	1	Transparent film, Acrylic, 24 inch x 50 yds., Blue	NA	1175	207.0000	\$ 207.00	55121734	905024
164	11	Transparent film, Acrylic, 24 inch x 50 yds., Green	NA	1177	207.0000	\$ 2,277.00	55121734	904024
165	1	Transparent film, Acrylic, 24 inch x 50 yds., Brown	NA	1179	207.0000	\$ 207.00	55121734	906024
166	1	Transparent film, Acrylic, 30 inch x 50 yds., Yellow	NA	1171	258.7500	\$ 258.75	55121734	-
167	1	Transparent film, Acrylic, 30 inch x 50 yds., Red	NA	1172	258.7500	\$ 258.75	55121734	907030
168	1	Transparent film, Acrylic, 30 inch x 50 yds., Blue	NA	1175	258.7500	\$ 258.75	55121734	905030
169	29	Transparent film, Acrylic, 30 inch x 50 yds., Green	NA	1177	258.7500	\$ 7,503.75	55121734	904030
170	1	Transparent film, Acrylic, 30 inch x 50 yds., Brown	NA	1179	258.7500	\$ 258.75	55121734	906030
171	1	Transparent film, Acrylic, 36 inch x 50 yds., Yellow	NA	1171	310.5000	\$ 310.50	55121734	902036
172	1	Transparent film, Acrylic, 36 inch x 50 yds., Red	NA	1172	310.5000	\$ 310.50	55121734	907036
173	1	Transparent film, Acrylic, 36 inch x 50 yds., Blue	NA	1175	310.5000	\$ 310.50	55121734	905036
174	7	Transparent film, Acrylic, 36 inch x 50 yds., Green	NA	1177	310.5000	\$ 2,173.50	55121734	904036
175	1	Transparent film, Acrylic, 36 inch x 50 yds., Brown	NA	1179	310.5000	\$ 310.50	55121734	906036
176	1	Transparent film, Acrylic, 42 inch x 50 yds., Yellow	NA	1171	362.2500	\$ 362.25	55121734	-
177	1	Transparent film, Acrylic, 42 inch x 50 yds., Red	NA	1172	362.2500	\$ 362.25	55121734	-
178	1	Transparent film, Acrylic, 42 inch x 50 yds., Blue	NA	1175	362.2500	\$ 362.25	55121734	-
179	1	Transparent film, Acrylic, 42 inch x 50 yds., Green	NA	1177	362.2500	\$ 362.25	55121734	904042
180	1	Transparent film, Acrylic, 42 inch x 50 yds., Brown	NA	1179	362.2500	\$ 362.25	55121734	-
181	1	Transparent film, Acrylic, 48 inch x 50 yds., Yellow	NA	1171	414.0000	\$ 414.00	55121734	-
182	10	Transparent film, Acrylic, 48 inch x 50 yds., Red	NA	1172	414.0000	\$ 4,140.00	55121734	907048
183	11	Transparent film, Acrylic, 48 inch x 50 yds., Blue	NA	1175	414.0000	\$ 4,554.00	55121734	905048
184	10	Transparent film, Acrylic, 48 inch x 50 yds., Green	NA	1177	414.0000	\$ 4,140.00	55121734	904048
185	2	Transparent film, Acrylic, 48 inch x 50 yds., Brown	NA	1179	414.0000	\$ 828.00	55121734	906048
186	1	Opaque film, Vinyl, 3/8 inch x 50 yds., Black	NA	3650-12	2.2500	\$ 2.25	55121734	518038
187	1	Opaque film, Vinyl, 5/8 inch x 50 yds., Black	NA	3650-12	3.7500	\$ 3.75	55121734	518062
188	1	Opaque film, Vinyl, 3/4 inch x 50 yds., Black	NA	3650-12	4.5000	\$ 4.50	55121734	518075
189	1	Opaque film, Vinyl, 7/8 inch x 50 yds., Black	NA	3650-12	5.2500	\$ 5.25	55121734	518088
190	100	Opaque film, Vinyl, 1-1/4 inch x 50 yds., Black	NA	3650-12	7.5000	\$ 750.00	55121734	518125
191	1	Opaque film, Vinyl, 18 inch x 50 yds., Matte White	NA	7725-20	108.0000	\$ 108.00	55121734	-
192	1	Opaque film, Vinyl, 18 inch x 50 yds., Black	NA	7725-12	108.0000	\$ 108.00	55121734	-
193	1	Opaque film, Vinyl, 18 inch x 50 yds., Yellow	NA	7725-15	108.0000	\$ 108.00	55121734	-
194	1	Opaque film, Vinyl, 18 inch x 50 yds., Blue	NA	7725-17	108.0000	\$ 108.00	55121734	-
195	1	Opaque film, Vinyl, 24 inch x 50 yds., Matte White	NA	7725-20	144.0000	\$ 144.00	55121734	-
196	1	Opaque film, Vinyl, 24 inch x 50 yds., Black	NA	7725-12	144.0000	\$ 144.00	55121734	518024
197	1	Opaque film, Vinyl, 24 inch x 50 yds., Yellow	NA	7725-15	144.0000	\$ 144.00	55121734	-

198	1	Opaque film, Vinyl, 24 inch x 50 yds., Blue	NA	7725-17	144.0000	\$ 144.00	55121734	-
199	1	Opaque film, Vinyl, 30 inch x 50 yds., Matte White	NA	7725-20	180.0000	\$ 180.00	55121734	-
200	4	Opaque film, Vinyl, 30 inch x 50 yds., Black	NA	7725-12	180.0000	\$ 720.00	55121734	518030
201	1	Opaque film, Vinyl, 30 inch x 50 yds., Yellow	NA	7725-15	180.0000	\$ 180.00	55121734	512030
202	1	Opaque film, Vinyl, 30 inch x 50 yds., Blue	NA	7725-17	180.0000	\$ 180.00	55121734	-
203	1	Opaque film, Vinyl, 36 inch x 50 yds., Matte White	NA	7725-20	216.0000	\$ 216.00	55121734	-
204	4	Opaque film, Vinyl, 36 inch x 50 yds., Black	NA	7725-12	216.0000	\$ 864.00	55121734	518036
205	1	Opaque film, Vinyl, 36 inch x 50 yds., Yellow	NA	7725-15	216.0000	\$ 216.00	55121734	512036
206	1	Opaque film, Vinyl, 36 inch x 50 yds., Blue	NA	7725-17	216.0000	\$ 216.00	55121734	-
207	1	Opaque film, Vinyl, 48 inch x 50 yds., Matte White	NA	7725-20	288.0000	\$ 288.00	55121734	-
208	29	Opaque film, Vinyl, 48 inch x 50 yds., Black	NA	7725-12	288.0000	\$ 8,352.00	55121734	518048
209	1	Opaque film, Vinyl, 48 inch x 50 yds., Yellow	NA	7725-15	288.0000	\$ 288.00	55121734	-
210	1	Opaque film, Vinyl, 48 inch x 50 yds., Blue	NA	7725-17	288.0000	\$ 288.00	55121734	-
211	1	Opaque film, Vinyl, 60 inch x 50 yds., Matte White	NA	7725-20	360.0000	\$ 360.00	55121734	-
212	1	Opaque film, Vinyl, 60 inch x 50 yds., Black	NA	7725-12	360.0000	\$ 360.00	55121734	-
213	1	Opaque film, Vinyl, 60 inch x 50 yds., Yellow	NA	7725-15	360.0000	\$ 360.00	55121734	-
214	1	Opaque film, Vinyl, 60 inch x 50 yds., Blue	NA	7725-17	360.0000	\$ 360.00	55121734	-
BID TOTAL						\$	346,355.15	

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or "Agencies" means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or "Proposal" means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or "Vendors" means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☒ **Term Contract**

Initial Contract Term: This Contract becomes effective on _____
upon award _____ and extends for a period of one (1) year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to three (3) successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed thirty-six (36) months in total. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____ days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days.

Upon completion, the vendor agrees that maintenance, monitoring, or warranty services will be provided for one year thereafter with an additional _____ successive one year renewal periods or multiple renewal periods of less than one year provided that the multiple renewal periods do not exceed _____ months in total. Automatic renewal of this Contract is prohibited.

☐ **One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. NOTICE TO PROCEED: Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☒ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute a breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

☐ **BID BOND (Construction Only):** Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☐ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of _____. The performance bond must be received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

☐ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

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The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. Subsequent to contract award, and prior to the insurance expiration date, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies mandated herein, including but not limited to, policy cancelation, policy reduction, or change in insurers. The insurance coverages identified below must be maintained throughout the life of this contract. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed in this section.

Vendor must maintain:

☐ **Commercial General Liability Insurance** in at least an amount of:

☐ **Automobile Liability Insurance** in at least an amount of: _____

☐ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of:

☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of:

☐ **Cyber Liability Insurance** in an amount of: _____

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

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9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. LITIGATION BOND: The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or \$5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

11. LIQUIDATED DAMAGES: Vendor shall pay liquidated damages in the amount of \$150 for each Calendar Day beyond twenty-five (25) Working Days until the order is received in full. This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy.

12. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

13. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

14. PAYMENT: Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

15. PURCHASING CARD ACCEPTANCE: The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

☐ Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

16. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

17. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

18. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

19. CANCELLATION: The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-6.1.e.

20. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.

21. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

22. COMPLIANCE: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

23. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

24. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

Revised 01/18/2017

25. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

26. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

27. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.

28. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

29. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

30. BANKRUPTCY: In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

31. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/default.html>.

32. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

33. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

34. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

35. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

36. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

37. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

38. PURCHASING AFFIDAVIT: In accordance with West Virginia Code § 5A-3-10a, all Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of \$1,000. The affidavit must be submitted prior to award, but should be submitted with the Vendor's bid. A copy of the Purchasing Affidavit is included herewith.

39. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE: This Contract may be utilized by other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts (“Other Government Entities”). Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

40. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

41. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☒ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

42. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider’s employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

43. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:


- a. “State Contract Project” means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. “Steel Products” means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:
- c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
- d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

44. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a “substantial labor surplus area”, as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as th Contract Administrator and the initial point of contact for matters relating to this Contract.



(Name, Title)
Matthew Leibel, Sr. Contract Administrator

(Printed Name and Title)
3M Center, Bldg 225-4N-14, St Paul MN 55144


(Address)
651-737-8279/888-246-9793

(Phone Number) / (Fax Number)
tbidgroup@mmm.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execut and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

3M Company

(Company)


(Authorized Signature) (Representative Name, Title)

Matthew Leibel, Sr Contract Administrator

(Printed Name and Title of Authorized Representative)

3/16/2017

(Date)

651-737-8279/888-246-9793

(Phone Number) (Fax Number)



Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
19 — Highways

Proc Folder: 292140

Doc Description: REFLECTIVE SIGN SHEETING & ASSOCIATED MATERIALS

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2017-02-17	2017-03-16 13:30:00	CRFQ 0803 DOT1700000058	1

BID RECEIVING LOCATION

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV

25305

US

VENDOR

Vendor Name, Address and Telephone Number:

3M Company

3M Center, Bldg 225-4N-14

St Paul, MN 55144

651-737-8279

FOR INFORMATION CONTACT THE BUYER

Mark A Atkins

(304) 558-2307

mark.a.atkins@wv.gov

Signature X

Matthew Leibel FEIN # 41-0417775

DATE

3/16/2017

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Division of Highways (WVDOH) and the West Virginia Division of Corrections (WVDOC) to establish an open-end contract for Reflective Sign Sheeting & Associated Materials, per the attached documents.

INVOICE TO	SHIP TO
VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER	STATE OF WEST VIRGINIA VARIOUS LOCATIONS AS INDICATED BY ORDER
No City US	No City US
WV99999	WV 99999

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Pricing shall be completed on Exhibit_A Pricing Page.	0.00000	EA		

Comm Code	Manufacturer	Specification	Model #
55121734			

Extended Description :

Note: Vendor shall use Exhibit_A Pricing Page(s) for bid pricing. If bidding online vendor must attach the pricing page and information attachment to their bid. See Section 18 of Instructions to Bidders for additional information.

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	Technical Questions due by:	2017-03-01

DOT1700000058	Document Phase Final	Document Description REFLECTIVE SIGN SHEETING & ASSOCIATED MATERIALS	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

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REQUEST FOR QUOTATION
Reflective Sign Sheeting & Associated Materials

SPECIFICATIONS

- 1. PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Division of Highways (WVDOH) and the West Virginia Division of Corrections (WVDOC) to establish an open-end contract for Reflective Sign Sheeting & Associated Materials.
- 2. DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
 - 2.1 “Contract Item” or “Contract Items”** means the list of items identified in Section 3.1 below and on the Pricing Pages.
 - 2.2 “Pricing Pages”** means the schedule of prices, estimated order quantity, and totals contained in wvOASIS or attached hereto as Exhibit_A, and used to evaluate the Solicitation responses.
 - 2.3 “Solicitation”** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
 - 2.4 “RFQ”** means the official RFQ published by the Purchasing Division.
 - 2.5 “WVDOH”** means the West Virginia Division of Highways
 - 2.6 “WVDOC”** means the West Virginia Division of Corrections
 - 2.7 “CSS”** means the WVDOH Central Sign Shop manufacturing facility.
 - 2.8 “Transfer Tape”** means a film (also known as “Transfer Film”) for pre-masking or applying pre-spaced legends using transparent or opaque films.
 - 2.9 “Type ASTM-I Reflective Sheeting”** means a retroreflective sheeting referred to as “engineering grade” that is typically a non-metalized micro-prismatic retroreflective element material.
 - 2.10 “Type ASTM-IV Reflective Sheeting”** means a retroreflective sheeting referred to as “high-intensity” that is typically a non-metalized micro-prismatic retroreflective element material.
 - 2.11 “Type ASTM-XI Reflective Sheeting”** means a retroreflective sheeting typically manufactured as a non-metalized cube corner micro-prismatic retroreflective element material.

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REQUEST FOR QUOTATION
Reflective Sign Sheeting & Associated Materials

- 2.12 “Opaque Film”** means an opaque, typically vinyl or acrylic pressure-sensitive film designed for permanent graphics that may be pre-spaced and electronically cut.
- 2.13 “Transparent Film”** means a colored, transparent, typically acrylic, pressure-sensitive film designed for permanent graphics that may be pre-spaced and electronically cut.
- 2.14 “Opaque Ink”** means an opaque, weather resistant, quick drying ink designed for use in traffic sign screen printing processes.
- 2.15 “Transparent ink”** means a transparent, weather resistant, quick drying ink designed for use in traffic sign screen printing processes.
- 2.16 “UV”** means ultraviolet.
- 2.17 “O.D.”** means Outside Diameter.
- 2.18 “I.D.”** means Inside Diameter
- 2.19 “Overage”** means the total width of excess material (beyond the specified nominal width) provided on a roll of reflective sheeting material in order to insure complete coverage of the aluminum blanks the material is applied to.
- 2.20 “Matched Components”** means the reflective sheeting manufacturer’s recommended transparent & opaque inks & films to be used for manufacturing purposes with the manufacturer’s reflective sheeting products.
- 2.21 “Standard Specifications”** means the portion of the WVDOH Standard Specifications for Roads and Bridges pertaining to the materials included in this Contract. The current Standard Specifications which pertain to the materials in this Contract are contained in Section 715.9.2 of the publication West Virginia Department of Transportation, Division of Highways, Standard Specifications Roads and Bridges, 2017 Edition. This publication may be found at the following address:

http://www.transportation.wv.gov/highways/contractadmin/specifications/2017StandSpec/Documents/2017_Standard.pdf

Specific material approval requirements for the materials included in this Contract, as well as compensative requirements of the material manufacturer in the event of

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Reflective Sign Sheeting & Associated Materials

material failure, as defined by the material durability and warranty requirements, are included in the Standard Specifications. Material approval requirements include, but may not be limited to, performance, durability, testing, manufacturer certification, and general material characteristic requirements. The Standard Specifications also specifies additional requirements required to be met by materials in order for those materials to be qualified for use in manufacturing processes within the CSS. All materials supplied under this Contract must be qualified for use in manufacturing processes within the CSS. The specifications and Contract Award provisions herein are reflective of this requirement.

- 2.22 “APL”** means the version of the WVDOH Approved Products List for Retroreflective Sign Sheeting in effect as of the advertising date of this Contract. This APL may be found at:

http://www.transportation.wv.gov/highways/mcst/Pages/Listings_Sorted.aspx

The APL is established in a manner consistent with the requirements contained in the Standard Specifications. All materials supplied under this Contract shall be listed on the APL. Additional requirements shall apply as specified herein. Per the notes included under Note #1 on the APL, the second table listed under Note #1 shall be used to verify materials considered to be acceptable to be provided under this Contract. The APL establishes a list of products that meet the acceptable level of quality and is not intended to reflect a preference or favor any particular brand or vendor. Any manufacturer whose product(s) meet the established level of quality may become an approved supplier and have their product(s) added to the APL in accordance with the approval procedures described in the Standard Specifications.

Note that, as indicated in the Standard Specifications, the inclusion of the manufacturer’s reflective sheeting material on the APL is not the sole requirement for that material to be eligible to be supplied under this Contract. All requirements are specified in detail in the Standard Specifications. The APL notes any restrictions in place in regards to the use of a particular reflective sheeting product or its’ matched components for manufacturing purposes within the CSS.

3. GENERAL REQUIREMENTS:

- 3.1 Contract Items and Mandatory Requirements:** Vendor shall provide Agency with the Contract Items listed below on an open-end and continuing basis. Contract Items must meet or exceed the mandatory requirements as shown below.

The specifications of this RFQ and/or any WVDOH Standards referenced in and/or attached to this RFQ may include references to specific recognized “industry standard” specifications which are issued by third parties, such as the American

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REQUEST FOR QUOTATION
Reflective Sign Sheeting & Associated Materials

Society for Testing and Materials (ASTM) and the American Association of State and Highway Transportation Officials (AASHTO). Such specifications are protected by strict copyright restrictions and cannot be published as part of this RFQ. The ability to access such specifications shall be considered a mandatory requirement for participation in the RFQ process as a Vendor or as a supplier to the Vendor, as applicable.

3.1.1 Contract Bid Items: The following Sections and described Items are listed on the Pricing Pages (see attachment: EXHIBIT_A Pricing Pages).

3.1.1.1 Section I : Transfer Tape

3.1.1.1.1 The transfer tape supplied under this Contract shall be listed on the APL.

3.1.1.1.2 Note that the “Overage Preferences” column on the Pricing Pages is not applicable to the materials in this Section.

3.1.1.2 Section II: Type ASTM-I Retroreflective Sheeting

3.1.1.2.1 The reflective sheeting material supplied under this Section shall be listed on the APL. The reflective sheeting material and the manufacturer recommended matched components (transparent film & ink, opaque film & ink) for use with the supplied reflective sheeting must all be approved by the WVDOH for manufacturing purposes within the CSS.

3.1.1.2.2 For particular nominal roll sizes of reflective sheeting listed on the Pricing Pages, a “preferred” overage is indicated in the “Overage Preferences” column. The preferred overage indicates the agencies’ preferred overages only, and are not a minimum requirement; however, these materials shall be provided with overage. If nothing is indicated in the “Overage Preferences” column, then no overage is required; however, the width

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REQUEST FOR QUOTATION
Reflective Sign Sheeting & Associated Materials

specified in the “Item Description” column shall be the minimum actual width of the material.

- 3.1.1.2.3** The manufacturer of the material supplied under this Section shall be the same manufacturer whose material is supplied under Sections III & IV.

3.1.1.3 Section III: Type ASTM-IV Retroreflective Sheeting

- 3.1.1.3.1** The reflective sheeting material supplied under this Section shall be listed on the APL. The reflective sheeting material and the manufacturer recommended matched components (transparent film & ink, opaque film & ink) for use with the supplied reflective sheeting must all be approved by the WVDOH for manufacturing purposes within the CSS.
- 3.1.1.3.2** For particular nominal roll sizes of reflective sheeting listed on the Pricing Pages, a “preferred” overage is indicated in the “Overage Preferences” column. The preferred overage indicates the agencies’ preferred overages only, and are not a minimum requirement; however, these materials shall be provided with overage. If nothing is indicated in the “Overage Preferences” column, then no overage is required; however, the width specified in the “Item Description” column shall be the minimum actual width of the material.
- 3.1.1.3.3** The manufacturer of the material supplied under this Section shall be the same manufacturer whose material is supplied under Sections II & IV.

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REQUEST FOR QUOTATION
Reflective Sign Sheeting & Associated Materials

3.1.1.4 Section IV: Type ASTM-XI Retroreflective Sheeting

3.1.1.4.1 The reflective sheeting material supplied under this Section shall be listed on the APL. The reflective sheeting material and the manufacturer recommended matched components (transparent film & ink, opaque film & ink) for use with the supplied reflective sheeting must all be approved by the WVDOH for manufacturing purposes within the CSS.

3.1.1.4.2 For particular nominal roll sizes of reflective sheeting listed on the Pricing Pages, a “preferred” overage is indicated in the “Overage Preferences” column. The preferred overage indicates the agencies’ preferred overages only, and are not a minimum requirement; however, these materials shall be provided with overage. If nothing is indicated in the “Overage Preferences” column, then no overage is required; however, the width specified in the “Item Description” column shall be the minimum actual width of the material.

3.1.1.4.3 The manufacturer of the material supplied under this Section shall be the same manufacturer whose material is supplied under Sections II & III.

3.1.1.5 Section V: Type ASTM-I, ASTM-IV, and Type ASTM-XI Retroreflective Sheeting Matched Components

3.1.1.5.1 Transparent and opaque matched component films for use with the reflective sheetings provided under Sections II, III, and IV shall be supplied under this Section.

3.1.1.5.2 The films supplied under this Section shall be the manufacturer recommended films for use with the

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reflective sheetings provided under Sections II, III,
and IV

3.1.1.5.3 The manufacturer of the material supplied under this Section shall be the same manufacturer whose material is supplied under Sections II, III, and IV.

3.1.1.6 Ancillary Items: For particular Sections of this Contract, the Vendor shall be required to supply ancillary items with the sheeting materials. These ancillary items shall be supplied at **no additional cost to the Agency** and shall be incidental to the pricing provided by the Vendor for the bid items in the applicable Sections of the Contract. The quantity of the items provided shall be based on the square footage of sheeting material ordered, as described below.

3.1.1.6.1 Inks: This requirement shall apply to Sections III and IV of this Contract. The ink provided shall be the reflective sheeting material manufacturer recommended matched component ink with UV inhibitor.

3.1.1.6.1.1 The Vendor shall be required to supply one (1) gallon of transparent ink per 1,200 square feet of reflective sheeting ordered and/or one (1) gallon of black ink per 2,500 square feet of reflective sheeting ordered.

3.1.1.6.1.2 The square footage shall be calculated based on the nominal roll size (the size listed under the line item).

3.1.1.6.1.3 The number of gallons of ink in each color shall be indicated by the purchasing Agency on the Release Order.

3.1.1.6.1.4 The quantity of ink required to be supplied shall be based on the total combined square footage of materials ordered under Sections III and IV.

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Example: If the Agency orders 8,500 combined square feet of material under Sections III and IV, the Agency may elect to require the Vendor to supply five (5) gallons of transparent ink and one (1) gallon of black ink $[(1 \times 2,500) + (5 \times 1,200) = 8,500]$.

The Vendor shall not be required to supply partial gallons. For example, if the Agency orders 8,000 combined square feet of material under Sections III and IV, and the Agency requires the Vendor to supply one (1) gallon of black ink, the Vendor shall only be required to supply as much as four (4) gallons of transparent ink.

3.1.1.6.2 Nylon Washers: This requirement shall apply to Sections III and IV of this Contract. The washers provided shall measure 5/16" (I.D.) x 7/8" (O.D.) x 1/16" thick, and shall be manufactured from commercial grade nylon.

3.1.1.6.2.1 The Vendor shall be required to supply one (1) package of washers per 3,500 square feet of reflective sheeting ordered.

3.1.1.6.2.2 In order to integrate with the WVDOH's inventory system, each package of washers shall include 1,000 individual washers.

3.1.1.6.2.3 The square footage shall be calculated based on the nominal roll size (the size listed under the line item). The total square footage of reflective sheeting ordered under Sections III and IV shall be combined in order to determine the quantity of washers required to be supplied.

3.1.1.6.2.4 The number of washers required to be supplied shall be indicated by the purchasing Agency on the Release Order.

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Example: If 17,500 total square feet of reflective sheeting material is ordered from the indicated Sections, the Vendor shall be required to supply 5,000 washers (five packages) (5 x 3,500 = 17,500).

The Vendor shall not be required to supply partial packages. For example, if 18,500 total square feet of reflective sheeting is ordered, then the Vendor shall only be required to supply five (5) packages (5,000 washers).

3.1.1.6.3 Slip Sheeting: This requirement shall apply to Sections III and IV of this Contract. With the exception of 12-3/4" reflective sheeting and nominal roll widths of sheeting less than 12".

3.1.1.6.3.1 The Vendor shall supply slip sheeting equal in width to each different width (nominal) reflective sheeting material ordered under these Sections.

3.1.1.6.3.2 The total length of each width supplied shall be at least equal to the total length of each width of reflective sheeting ordered under these Sections.

3.1.1.6.3.3 All slip sheeting shall be supplied in roll form.

3.1.1.6.3.4 The slip sheeting shall be compatible with the sheeting manufacturer's reflective sheeting material and matched components.

3.1.1.6.3.5 The minimum total length of each width of slip sheeting required to be supplied shall be indicated by the purchasing Agency on the Release Order.

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4. CONTRACT AWARD:

4.1 Contract Award: The Contract is intended to provide Agencies with a purchase price on all Contract Items.

Award shall not be split for this Contract. Award of this Contract shall be based on the lowest overall bid received. In order to be considered for award, the Vendor must provide a bid for **all items** and all materials to be provided shall meet the requirements specified herein.

4.2 Pricing Pages: Vendor should complete the Pricing Pages by providing a unit price for each item listed.

In order to be considered for award, the Vendor must provide a bid for **all items** and the materials bid must meet all applicable requirements and specifications included and referenced herein. Failure to provide pricing for all items on the pricing pages will result in bid disqualification.

The Vendor should also specify the material to be supplied (manufacturer product code) in the location provided for each line item. This Contract shall not be awarded to any Vendor prior to receipt of this information from the Vendor.

The Vendor should also enter a calculated value [estimated quantity x unit price] in the “Extended Total Amount” column. Then add the Extended Total Amount column and enter that amount in the Bid Total box.

The Pricing Pages contain a list of the Contract Items and estimated purchase volume. The estimated purchase volume for each item represents the approximate volume of anticipated purchases only. No future use of the Contract or any individual item is guaranteed or implied.

Vendor should electronically enter the information into the Pricing Pages through wvOASIS, if available, or as an electronic document. In most cases, the Vendor can request an electronic copy of the Pricing Pages for bid purposes by sending an email request to the following address: Mark.A.Atkins@wv.gov.

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5. ORDERING AND PAYMENT:

- 5.1 Ordering:** Vendor shall accept orders through wvOASIS, regular mail, facsimile, e-mail, or any other written form of communication. Vendor may, but is not required to, accept on-line orders through a secure internet ordering portal/website. If Vendor has the ability to accept on-line orders, it should include in its response a brief description of how Agencies may utilize the on-line ordering system. Vendor shall ensure that its on-line ordering system is properly secured prior to processing Agency orders on-line.
- 5.2 Payment:** Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.
- 5.3 Minimum Order Size:** There shall be no minimum order size associated with this Contract.

6. DELIVERY AND RETURN:

- 6.1 Delivery Time:** Vendor shall deliver standard orders within twenty-five (25) working days after orders are received. Vendor shall ship all orders in accordance with the above schedule and shall not hold orders until a minimum delivery quantity is met.
- 6.2 Late Delivery:** The Agency placing the order under this Contract must be notified in writing if orders will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the delayed order, and/or obtaining the items ordered from a third party.

Any Agency seeking to obtain items from a third party under this provision must first obtain approval of the Purchasing Division.

Regardless of whether or not the vendor provides written notification of an order delay, if the Vendor is unable to deliver in full within twenty-five (25) Working Days after receipt of the order, the Vendor shall be subject to a daily (per Calendar Day) penalty in the amount of \$150.00 at the purchasing Agency's discretion for each Calendar Day beyond the delivery deadline date until the order is received in full. This penalty shall be assessed by subtracting the penalty from the original total value of the Release Order. The penalty shall not exceed the original total amount of the Release Order.

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- 6.3 Delivery Payment/Risk of Loss:** Standard order delivery shall be F.O.B. destination to the Agency's location. Vendor shall include the cost of standard order delivery charges in its bid pricing/discount and is not permitted to charge the Agency separately for such delivery.
- 6.4 Packaging & Material Condition:** Upon delivery, all materials shall be of good appearance free from ragged edges, cracks, and extraneous materials, and shall be supplied in roll form. The materials shall be evenly wound on a core of sufficient rigidity to prevent distortion of the roll. For sheeting materials, the maximum number of splices shall be four (4) per 50-yd roll. Each splice shall be visible at the edge of the roll. Rolls shall be packaged snugly in corrugated fiberboard boxes such that no damage or defacement may occur during shipment or storage.
- 6.5 Return of Unacceptable Items:** If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion. If the Agency elects to have the returned items replaced, the provisions of Sections 6.1 and 6.2 shall remain in effect until the order is completed in full with material accepted by the Agency.
- 6.6 Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

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7. VENDOR DEFAULT:

7.1 The following shall be considered a vendor default under this Contract.

- 7.1.1 Failure to provide Contract Items in accordance with the requirements contained herein.
- 7.1.2 Failure to comply with other specifications and requirements contained herein.
- 7.1.3 Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.
- 7.1.4 Failure to remedy deficient performance upon request.

7.2 The following remedies shall be available to Agency upon default.

- 7.2.1 Immediate cancellation of the Contract.
- 7.2.2 Immediate cancellation of one or more release orders issued under this Contract.
- 7.2.3 Any other remedies available in law or equity.

8. MISCELLANEOUS:

- 8.1 No Substitutions:** Vendor shall supply only Contract Items submitted in response to the Solicitation unless a contract modification is approved in accordance with the provisions contained in this Contract.
- 8.2 Vendor Supply:** Vendor must carry sufficient inventory of the Contract Items being offered to fulfill its obligations under this Contract. By signing its bid, Vendor certifies that it can supply the Contract Items contained in its bid response.
- 8.3 Reports:** Vendor shall provide quarterly reports and annual summaries to the Agency showing the Agency's items purchased, quantities of items purchased, and total dollar value of the items purchased. Vendor shall also provide reports, upon request, showing the items purchased during the term of this Contract, the quantity purchased for each of those items, and the total value of purchases for each of those items. Failure to supply such reports may be grounds for cancellation of this Contract.

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8.4 Technical Assistance: If awarded any Section of this Contract, the successful Vendor shall, upon request by any of the Agencies named in this Contract, provide technical assistance for the service of application equipment and instruction and training of Agency personnel in the proper application of the materials supplied. This may include, but shall not be limited to, calibration and troubleshooting of application equipment, training films, material application, screen printing, packaging, storage, and the proper use & handling of inks.

8.5 Contract Manager: During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Matthew Leibel, Sr Contract Administrator

Telephone Number: 651-737-8279

Fax Number: 888-246-9793

Email Address: tbidgroup@mmm.com

Power Of Attorney

By the authority granted the undersigned by the Deputy General Counsel and Secretary, the individuals listed below are appointed as 3M's, or its designated subsidiaries', true and lawful attorneys-in-fact for it, and in its name, for commercially-available products and services and government-unique products and services (**except research and development services***) for which 3M or its designated subsidiaries will be a prime contractor or subcontractor to any federal, state or municipal governmental agency in the United States, or to a federal, state or municipal prime contractor or higher tier subcontractor in the United States, to do acts specified on behalf of this Corporation.

(a) To submit or execute proposals, bids, binding purchase orders, contracts and subcontracts, and documents related thereto, (**excluding certifications, representations and warranties to comply with certain laws or regulations****), the following attorneys-in-fact are hereby appointed. Authority may not be sub-delegated.

Authority for the below individuals applies to the specific Business Unit or staff function indicated, subject to the limitations imposed by their respective General Manager/Vice President or equivalent.

- | | | | |
|--|---|--|---|
| ● <u>3M Purification</u>
Towne, Richard B. | ● <u>Critical & Chronic Care Solutions Division</u>
McDonald, Michael S. | ● <u>Health Information Systems</u>
Black, Lisa M.
Cline, Jan C.
Garrison, Garri L.
Graves, Terri M.
Jennings, Gerald R.
Kim, Myung H.
Mason, Deborah A.
Mathison, John C.
McDonough, James R.
Mitchell, Brian D. | ● <u>Oral Care Solutions</u>
Barnard, Mathew C. |
| ● <u>3M Unitek Corporation</u>
Barnard, Mathew C. | ● <u>Electronics Materials Solutions</u>
Anderson, Kevin G.
Koch, Joseph F. | | ● <u>Optical Systems Division</u>
Summers, Micki A. |
| ● <u>Abrasive Systems</u>
Canniff, Perry M. | ● <u>Electrical Markets</u>
Schiller, Fred K. | | ● <u>Personal Safety 3M Detection Solutions</u>
Canniff, Perry M.
Wesemann, Melissa J. |
| ● <u>Advanced Materials</u>
Davis, Scott J.
Giancola, John B.
Hanson, Scott R.
Ingstad, Cheryl A.
Lockhart, Bruce R.
Magrini, Dave L.
Moeller, Kent
Pearson, Claudia
Race, Robert J.
Utle, Elizabeth R. | ● <u>Food Safety Department</u>
Erdman, Michelle M.
Wadie, John A. | ● <u>Industrial Adhesive & Tapes Venture Tape Corp</u>
Authority for the below individual(s) applies to Federal Supply Schedule contracts only:
Canniff, Perry M. | ● <u>Traffic Safety & Security</u>
Benz, John P.
Christopherson, Nicole A.
Flatley, Doreen A.
Kester, Joseph H.
Leibel, Matthew R.
McMahon, Denise C.
Morris, John N.
Pointon, David A.
Roese, Arnie K.
Schiralli, Ella M.
Selby, Megan A.
Shilling, Mitzi |
| ● <u>Aero Technologies LLC</u>
Canniff, Perry M. | ● <u>Government R&D Contracts Department*</u>
Charles, Ruth P.
Kays, Steven L.
Smith, Vivien L. | ● <u>Infection Prevention Division</u>
McDonald, Michael S.
-Health Care Service Support
Haataja, Brian J. | |
| ● <u>Aerospace & Comm'l Transportation</u>
Canniff, Perry M. | ● <u>GTA-NHT, Inc</u>
Canniff, Perry M. | | |
| | ● <u>Stationery & Office Supplies</u>
Rihm, Diana L. | | |

Authority for the below individuals applies to any Business Unit or staff function.

- | | | |
|--|---|---|
| ● <u>Global Channel Services</u>
Hilfer, Derrick E.
Mathers, Stephanie M. | ● <u>Government Markets</u>
Augustine, Rick
Kindem, Karen A.
Patrick, Laurie A. | ● <u>Government Contract Compliance</u>
Bordas, Richard J.
Carr, Terrance H.
Horwitz, Charles M.
Paraschou, Maria V.
Robinette, Thomas M. |
| ● <u>Office of General Counsel</u>
Kuyath, Richard N. | | |

*Authority is delegated by 3M's Senior Vice President, Research and Development, and Chief Technology Officer, to the Vice Presidents, Research and Development, for their respective 3M Business Groups, and to certain specified employees in GR&DC, to execute proposals, contracts and subcontracts (including certifications, representations and warranties to comply with certain laws and regulations) for government R&D services. Authority to sign country of origin certifications for government R&D services is delegated to the Trade Compliance Department as specified below.

**Product or performance warranties are to be reviewed and accepted by any 3M individual granted authority or responsibility to do so by the applicable business unit or staff group.

(b) To make certifications, (except Country of Origin certifications), the following attorneys-in-fact are hereby appointed. Authority may not be sub-delegated, except certifications made by other attorneys-in-fact listed in paragraph (a) may be authorized in writing by one of the individuals listed in paragraph (b) after a determination by one of the individuals in paragraph (b) that such certification is valid. Unfamiliar certifications must be cleared with the Government Contract Compliance department prior to execution.

Authority for the below individuals applies to the specific Business Unit or staff function indicated.

- | | | | |
|---|---|--|---|
| ● <u>3M Unitek Corporation</u>
Barnard, Mathew C. | ● <u>Aerospace & Comm Transportation</u>
Canniff, Perry M. | ● <u>Government R&D Contracts Department*</u>
Charles, Ruth P.
Kays, Steven L.
Smith, Vivien L. | ● <u>Industrial Adhesive & Tapes Venture Tape Corp</u>
Authority for the below individual(s) applies to Federal Supply Schedule contracts only:
Canniff, Perry M. |
| ● <u>Abrasive Systems</u>
Canniff, Perry M. | ● <u>Critical & Chronic Care Solutions Division</u>
McDonald, Michael S. | ● <u>Health Information Systems Division</u>
Black, Lisa M.
Cline, Jan C.
Garrison, Garri L.
Graves, Terri M.
Jennings, Gerald R.
Kim, Myung H.
Mason, Deborah A.
Mathison, John C.
McDonough, James R. | ● <u>Oral Care Solutions</u>
Barnard, Mathew C. |
| ● <u>Advanced Materials</u>
Davis, Scott J.
Giancola, John B.
Hanson, Scott R.
Ingstad, Cheryl A.
Lockhart, Bruce R.
Magrini, Dave L.
Moeller, Kent
Pearson, Claudia
Race, Robert J.
Utle, Elizabeth R. | ● <u>Electronics Materials Solutions</u>
Anderson, Kevin G.
Koch, Joseph F. | ● <u>Infection Prevention Division</u>
McDonald, Michael S.
-Health Care Service Support
Haataja, Brian J. | ● <u>Personal Safety 3M Detection Solutions</u>
Canniff, Perry M.
Wesemann, Melissa J. |
| ● <u>Aero Technologies LLC</u>
Canniff, Perry M. | ● <u>Food Safety Department</u>
Erdman, Michelle M.
Wadie, John A. | | ● <u>Traffic Safety & Security</u>
Benz, John P.
Kester, Joseph H.
Leibel, Matthew R.
McMahon, Denise C.
Morris, John N.
Roese, Arnie K.
Shilling, Mitzi |
| | ● <u>GTA-NHT, Inc.</u>
Canniff, Perry M. | | |

Authority for the below individuals applies to any Business Unit or staff function.

- | | | |
|--|--|--|
| ● <u>Global Channel Services</u>
Hilfer, Derrick E. | ● <u>Government Markets</u>
Augustine, Rick
Kindem, Karen A.
Patrick, Laurie A. | ● <u>Government Contract Compliance</u>
Bordas, Richard J.
Carr, Terrance H.
Horwitz, Charles M.
Paraschou, Maria V.
Robinette, Thomas M. |
| ● <u>Office of General Counsel</u>
Kuyath, Richard N. | | |

(c) To make Country of Origin certifications, the following attorney(s)-in-fact are hereby appointed:

- Trade Compliance Department
Authority may be sub-delegated in writing:
Goebel, Kathleen
Kirr, Ashley
LaMere, Pierre J.
Lukrafka Varassin, Magda
Mulinix, Jonathan

For all appointments, authority ceases or may be subsequently modified upon the individual's change in business unit, staff group or responsibilities, or when employment is terminated. Authority may be withdrawn or modified at any time.

This Power of Attorney revokes all prior Powers of Attorney with respect to the same matters and shall remain in effect until terminated by the undersigned or any other person authorized to grant powers of attorney on behalf of 3M. The undersigned has signed this Power of Attorney on this

18 day of July, 2016.

3M Company

By Charles M. Horwitz
Charles M. Horwitz
Director, Government Contract Compliance



March 16, 2017

State of West Virginia
Purchasing Division
2019 Washington St E
Charleston, WV 25305-0130

Subject: State of West Virginia CRFQ 803 DOT17000000058

Qualifications

General Terms & Conditions, Warranty, Section 28

3M will warrant the products provided under this contract as more fully described in the relevant product bulletins attached to its bid response. No other warranties, express or implied, shall apply.

General Terms & Conditions, Antitrust, Section 34

3M will agree to assign all material causes of action arising under the laws of the United States or the State of West Virginia related to price fixing and/or restraint of trade.

General Terms & Conditions, Indemnification, Section 37

3M will agree to indemnify the State for third party claims arising from 3M's negligent performance of this contract or violations of state and/or federal laws.

General Terms & Conditions, Conflict of Interest, Section 40

3M Company is a global, publicly traded company with annual sales in 2016 of approximately \$30B and over 89,000 employees worldwide. Because 3M is publicly traded and because of 3M's size, 3M cannot state with certainty whether any direct or indirect conflict of interest may exist between 3M Company, its employees and the State of West Virginia and its employees. That said, with a market capitalization of \$111B no individual shareholder has a significant financial interest in 3M Company.

Matthew Leibel
Sr. Contract Administrator
(651)737-8279
tbidgroup@mmm.com

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: 3M Company

Authorized Signature: *Matthew Leibel* Date: 3/16/2017

State of Minnesota

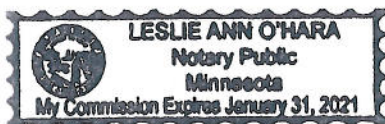
County of Ramsey, to-wit: Matthew Leibel, Sr. Contract Administrator

Taken, subscribed, and sworn to before me this 16 day of March, 2017.

My Commission expires January 31, 2021.

AFFIX SEAL HERE

NOTARY PUBLIC



Leslie Ann O'Hara
Purchasing Affidavit (Revised 08/01/2015)