



**CENTRALBIDDING**  
FROM CENTRAL AUCTION HOUSE

**5000130972 PURCHASE OF REFLECTIVE STOP SIGN SHEETING FOR  
THE DEPARTMENT OF TRAFFIC ENGINEERING**  
Jefferson Parish Government

Project documents obtained from [www.CentralBidding.com](http://www.CentralBidding.com)  
26-May-2020 10:20:45 AM



**BID 50-130972**  
**PURCHASE OF REFLECTIVE STOP SIGN SHEETING FOR**  
**THE DEPARTMENT OF TRAFFIC ENGINEERING**

**May 29, 2020 @ 11:00 A.M.**

**ATTENTION VENDORS!!!**

**Please review all pages and respond accordingly, complying with all provisions in the technical specifications and Jefferson Parish Instructions for Bidders and General Terms and Conditions. All bids must be received in the Purchasing Department by the bid due date and time.**

**Jefferson Parish Purchasing Department**  
**200 Derbigny Street, Suite 4400**  
**Gretna, LA 70053**  
**Please Email Any Questions To:**  
**Mark BATTERY**  
**MBATTERY@JEFFPARISH.NET**  
**504-364-2810**

INVITATION TO BID  
THIS IS NOT AN ORDER

Page: 1

DATE: 5/21/2020

BID NO.: 50-00130972

**JEFFERSON PARISH**  
PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETNA, LA. 70054-0009  
504-364-2678

VENDOR:

BUYER: MBUTTERY@jeffparish.net

**Bids will be received until 11:00 AM, 5/29/2020 via online at [www.jeffparishbids.net](http://www.jeffparishbids.net) or by hand delivery, USPS mail or other courier service to Purchasing Department, 200 Derbigny Street (General Government Building), Suite 4400, Gretna, LA 70053. For convenience, bidders may also submit bids in the East Bank Purchasing Department, Suite 404, Jefferson Parish Joseph S. Yenni Building, 1221 Elmwood Park Blvd., Jefferson LA 70123. However, if submitting bids on the day of bid opening, bidders must submit at the West Bank location only.**

All bids submitted are subject to these instructions and general conditions and any special conditions and specifications contained herein, all of which are made part of this bid proposal reference. By submitting a bid, vendor agrees to comply with all provisions of Louisiana Law, as well be in compliance with the Jefferson Parish Code of Ordinances, Louisiana Code of Ethics, applicable Jefferson Parish ethical standards and Jefferson Parish Resolution No. 113646 and/or Resolution No. 113647. A copy of these resolutions may be obtained from the Office of the Parish Clerk, Suite 6700, Jefferson Parish General Government Building, 200 Derbigny Street, Gretna, LA 70053. You may also obtain a copy by visiting the Purchasing Department webpage at [purchasing.jeffparish.net](http://purchasing.jeffparish.net) and clicking on On-line forms.

All vendors submitting bids should register as a Jefferson Parish vendor if not already yet registered. Registration forms may be downloaded from <http://purchasing.jeffparish.net> and by clicking on Vendor Information. Current W-9 forms with respective Tax Identification numbers and vendor applications may be submitted at any time; however, if your company is not registered and/or a current W-9 form is not on file, vendor registration is mandatory. Vendors may experience a delay in payment if your company is not a registered vendor with Jefferson Parish.

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Delivered, anywhere within the Parish as designated by the Purchasing Department. JEFFERSON PARISH WILL ACCEPT ONE BID ONLY FROM EACH VENDOR. Items bid must meet specifications. JEFFERSON PARISH will accept one price for each item unless otherwise indicated. Two or more prices for one item will result in bid rejection. Bidders are required to complete, sign and return the bid form and/or complete and return the associated line item pricing forms as indicated. The price quoted for work shall be stated in figures. In the event there is a difference in unit prices and totals, the unit prices shall prevail.

JEFFERSON PARISH reserves the right to award contracts or place orders on a lump sum or individual item basis, or such combination, as shall in its judgment be in the best interest of JEFFERSON PARISH. Every contract or order shall be awarded to the LOWEST RESPONSIVE and RESPONSIBLE BIDDER, taking into consideration the CONFORMITY WITH THE SPECIFICATIONS and the DELIVERY AND/OR COMPLETION DATE

PROTESTS: Only those vendors that submit bids in response to this solicitation may protest any element of the procurement, in writing to the Director of the Purchasing Department. Written protest must be received within 48 hours of the release of the bid tabulation by the Purchasing Department. After consultation, the Parish Attorney's Office will then respond to protests in writing. (For more information, please see Chapter 2, Article VII, Division 2, Sec. 2-914.1 of the Jefferson Parish Code of Ordinances.)

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in the quotation. The order must not be filed at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH requires all products to be new (current) and all work must be performed according to standard practices for the project. Unless otherwise specified, no aftermarket parts will be accepted. Unless otherwise specified, all workmanship and materials must have at least one (1) year guaranty, in writing, from the date of delivery and/or acceptance of the project. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

If this bid requires a pre-bid conference (see Additional Requirements section), bidders are advised that such conference will be held to allow bidders the opportunity to identify any discrepancies in the bid specifications and seek further clarification regarding instructions. The Purchasing Department will issue a written response to bidders' questions in the form of an Addendum.

All formal Addenda require written acknowledgment on the bid form by the bidder. Failure to acknowledge an Addendum on the bid form shall cause the bid to be rejected; JEFFERSON PARISH reserves the right to award bid to next lowest responsive and responsible bidder in this event.

USE OF BRAND NAMES AND STOCK NUMBERS: Where brand names and stock numbers are specified, it is for the purpose of establishing certain minimum standards of quality. Bids may be submitted for products of equal quality, provided brand names and stock numbers are specified. Complete product data may be required prior to award.

Quantities listed are for bidding purposes only. Actual requirements may be more or less than quantities listed.

Bidders are not to exclude from participation in, deny the benefits of, or subject to discrimination under any program or activity, any person in the United States on the grounds of race, color, national origin, or sex; nor discriminate on the basis of age under the Age Discrimination Act of 1975, or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973, or on the basis of religion, except that any exemption from such prohibition against discrimination on the basis of religion as provided in the Civil Rights Act of 1964, or Title VI and VII of the Act of April 11, 1968, shall also apply. This assurance includes compliance with the administrative requirements of the Revenue Sharing final handicapped discrimination provisions contained in Section 51.55 (c), (d), (e), and (k)(5) of the Regulations. New construction or renovation projects must comply with Section 504 of the 1973 Rehabilitation Act, as amended, in accordance with the American National Standard Institute's specifications (ANSI A117.1-1961).

Jefferson Parish and its partners as the recipients of federal funds are fully committed to awarding a contract(s) to firm(s) that will provide high quality services and that are dedicated to diversity and to containing costs. Thus, Jefferson Parish strongly encourages the involvement of minority and/or woman-owned business enterprises (DBE's, including MBE's, WBE's and SBE's) to stimulate participation in procurement and assistance programs.

**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

**IN ACCORDANCE WITH STATE REGULATIONS JEFFERSON PARISH OFFERS ELECTRONIC PROCUREMENT TO ALL VENDORS**

**This electronic procurement system allows vendors the convenience of reviewing and submitting bids online. This is a secure site and authorized personnel have limited read access only. Bidders are encouraged to submit electronically using this free service; while the website accepts various file types, one single PDF file containing all appropriate and required bid documents is preferred. Bidders submitting uploaded images of bid responses are solely responsible for clarity. If uploaded images/documents are not legible, then bidder's submission will be rejected. Please note all requirements contained in this bid package for electronic bid submission.**

**Please visit our E-Procurement Page at [www.jeffparishbids.net](http://www.jeffparishbids.net) to register and view Jefferson Parish solicitations. For more information, please visit the Purchasing Department page at <http://purchasing.jeffparish.net>.**

**ADDITIONAL REQUIREMENTS FOR THIS BID**

PLEASE MATCH THE NUMBERS PRINTED IN THIS BOX WITH THE CORRESPONDING INSTRUCTIONS BELOW.

13

1. All bidders must attend the MANDATORY pre-bid conference and will be required to sign in and out as evidence of attendance. In accordance with LSA R.S. 38:2212(I), all prospective bidders shall be present at the beginning of the MANDATORY pre-bid conference and shall remain in attendance for the duration of the conference. Any prospective bidder who fails to attend the conference or remain for the duration shall be prohibited from submitting a bid for the project.
2. Attendance to this pre-bid conference is optional. However, failure to attend the pre-bid conference shall not relieve the bidder of responsibility for information discussed at the conference. Furthermore, failure to attend the pre-bid conference and inspection does not relieve the successful bidder from the necessity of furnishing materials or performing any work that may be required to complete the work in accordance with the specification with no additional cost to the owner.
3. Contractor must hold current applicable JEFFERSON PARISH licenses with the Department of Inspection and Code Enforcement. Contractor shall obtain any and all permits required by the JEFFERSON PARISH Department of Inspection and Code Enforcement. The contractor shall be responsible for the payment of these permits. All permits must be obtained prior to the start of the project. Contractor must also hold any and all applicable Federal and State licenses. Contractor shall be responsible for the payment of these permits and shall obtain them prior to the start of the project.
4. A LA State Contractor's License will be required in accordance with LSA R.S. 37-2150 et. seq. and such license number will be shown on the outside of the bid envelope. Failure to comply will cause the bid to be rejected. Additionally if submitting the bid electronically, then the license number must be entered in the appropriate field in the Electronic Procurement system. Failure to comply will cause the bid to be rejected.
5. It is the bidder's responsibility to visit the job site and evaluate the job before submitting a bid.
6. Job site must be clean and free of all litter and debris daily and upon completion of the contract. Passageways must be kept clean and free of material, equipment, and debris at all times. Flammable material must be removed from the job site daily because storage will not be permitted on the premises. Precautions must be exercised at all times to safeguard the welfare of JEFFERSON PARISH and the general public.

**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

7. PUBLIC WORKS BIDS: All awards for public works in excess of \$5,000.00 will be reduced to a formal contract which shall be recorded at the contractor's expense with the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. A price list of recordation costs may be obtained from the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. All awards in excess of \$25,000.00 will require both a performance and a payment bond. Unless otherwise stated in the bid specifications, the performance bond requirements shall be 100% of the contract price. Unless otherwise state in the bid specifications, the payment bond requirements shall be 100% of the contract price. Both bonds shall be supplied at the signing of the contract.
8. NON-PUBLIC WORKS BIDS: A performance bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The performance bond shall be supplied at the signing of the contract.
9. NON-PUBLIC WORKS BIDS: A payment bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The payment bond shall be supplied at the signing of the contract.
10. All bidders must comply with the requirements stated in the attached "Standard Insurance Requirements" sheet attached to this bid solicitation. Failure to comply with this instruction will result in bid rejection.
11. A bid bond will be required with bid submission in the amount of 5% of the total bid, unless otherwise stated in the bid specifications. Acceptable forms shall be limited to cashier's check, certified check, or surety bid bond. All sureties must be in original format (no copies). If submitting a bid online, vendors must submit an electronic bid bond through the respective online clearinghouse bond management system(s) as indicated in the electronic bid solicitation on Central Auction House. No scanned paper copies of any bid bond will be accepted as part of the electronic bid submission.
12. This is a requirements contract to be provided on an as needed basis. JEFFERSON PARISH makes no representations on warranties with regard to minimum guaranteed quantities unless otherwise stated in the bid specifications.
13. Freight charges should be included in total cost when quoting. If not quoted FOB DELIVERED, freight must be quoted as a separate item. Bid may be rejected if not quoted FOB DELIVERED or if freight charges are not indicated on bid form.
14. PUBLIC WORKS BIDS - Completed, Signed and Properly Notarized Affidavits Required; This applies to all solicitations for construction, alteration or demolition of public buildings or projects, in conformity with the provisions contained in LSA-RS 38:2212.9, LSA-RS 38:2212.10, LSA-RS 38:2224, and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Conviction Affidavit, Non-Collusion Affidavit, Campaign Contribution Affidavit, Debt Disclosures Affidavit and E-Verify Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
15. NON PUBLIC WORK BIDS - Completed, Signed and Properly Notarized Affidavits Required in conformity with the provisions contained in LSA – RS 38:2224 and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Collusion Affidavit, Debt Disclosures Affidavit and Campaign Contribution Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled NON PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
16. The ensuing contract for this bid solicitation may be eligible for FEMA reimbursement and/or Federal funding/reimbursement. As such, the referenced appendix will be applicable accordingly and shall be considered a part of the bid documents. All applicable certifications must be duly completed, signed and submitted with bid submission. Failure to submit applicable certifications with bid submission will result in bid rejection.

**It shall be the duty of every parish officer, employee, department, agency, special district, board, and commission: and the duty of every contractor, subcontractor, and licensee of the parish, and the duty of every applicant for certification of eligibility for a parish contract or program, to cooperate with the Inspector General in any investigation, audit, inspection, performance review, or hearing pursuant to JPCO 2-155.10(19). By signing this document, every corporation, partnership, or person contracting with PARISH, whether by cooperative endeavor, intergovernmental agreement, bid, proposal, application or solicitation for a parish contract, and every application for certification of eligibility for a parish contract or program, attests that it understands and will abide by all provisions of JPCO 2-155.10.**

DATE: 5/21/2020

INVITATION TO BID  
THIS IS NOT AN ORDER

Page: 4

BID NO.: 50-00130972

**JEFFERSON PARISH**  
PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETNA, LA. 70054-0009  
504-364-2678

VENDOR: **Blackstar Diversified Enterprises**

BUYER: MBUTTERY

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Agency warehouse or jobsite, anywhere within the Parish as designated by the Purchasing Department.

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH is expecting all products to be new and all work to be done in workman-like manner, according to standard practices. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

<b>DELIVERY: FOB JEFFERSON PARISH</b>	
INDICATE DELIVERY DATE ON EQUIPMENT AND SUPPLIES	<u>21 Days</u>
INDICATE STARTING TIME (IN DAYS) FOR CONSTRUCTION WORK	<u>n/a</u>
INDICATE COMPLETION TIME (IN DAYS) FOR CONSTRUCTION WORK	<u>n/a</u>

In the event that addenda are issued with this bid, bidders MUST acknowledge all addenda on the bid form. Bidder must acknowledge receipt of an addendum on the bid form as indicated. Failure to acknowledge any addendum on the bid form will result in bid rejection.

Acknowledge Receipt of Addenda: NUMBER: n/a

NUMBER: \_\_\_\_\_

NUMBER: \_\_\_\_\_

NUMBER: \_\_\_\_\_

LOUISIANA CONTRACTOR'S LICENSE NO.: (if applicable) \_\_\_\_\_

<b>*** ALL BIDDERS MUST COMPLETE SECTION BELOW ***</b>	
FIRM NAME: <b>Blackstar Diversified Enterprises</b>	
SIGNATURE: (Must be signed here) 	TITLE: <b>Owner</b>
PRINT OR TYPE NAME: <b>Hugh Blackwell</b>	
ADDRESS: <b>11131 Winchester Park Drive</b>	
CITY, STATE: <b>New Orleans, LA</b>	ZIP: <b>70128</b>
TELEPHONE: <b>(703) 474-2563</b>	FAX: <b>(504) 265-9919</b>
EMAIL ADDRESS: <b>hugh@blackstardiversified.net</b>	

TOTAL PRICE OF ALL BID ITEMS: \$ 30,670.00

INVITATION TO BID FROM JEFFERSON PARISH - continued

BID NO.: 50-00130972

SEALED BID

ITEM NUMBER	QUANTITY	U/M	DESCRIPTION OF ARTICLES	UNIT PRICE QUOTED	TOTALS
1	500.00	EA	<p>PURCHASE OF REFLECTIVE SHEETING FOR THE DEPARTMENT OF TRAFFIC ENGINEERING</p>	61.34	30,670.00
			<p>0010 REFLECTIVE STOP SIGN (R1-1) FACE, 30 X 30, RADIUS NOT APPLICABLE, TYPE XI, REVERSE RED ON WHITE W/ GRAFFITI OVERLAY</p> <p>ITEM # FED R1-1-30 XI-FACE</p> <p>AVERY T11500 SHEETING W/ OL-1000 SEE ATTACHED SPECS</p> <p>CARL HOLMES</p>		

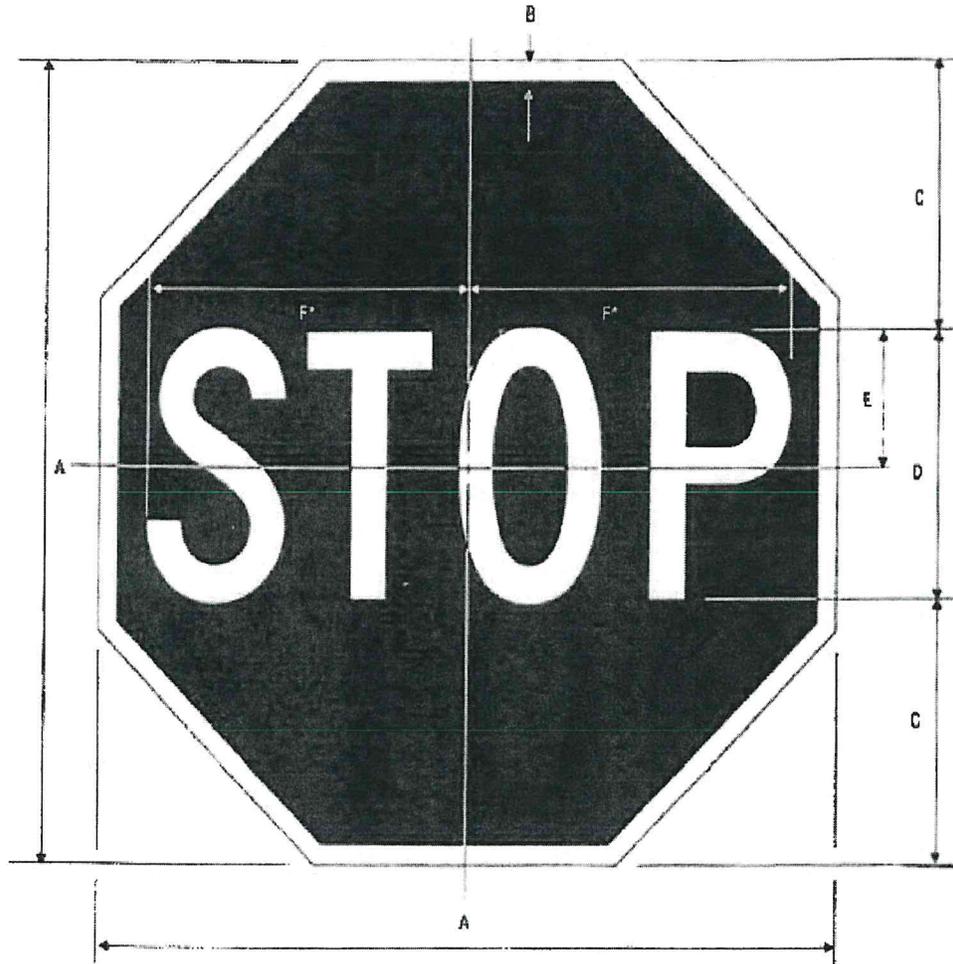
**Department of Engineering  
Traffic Engineering Division**

Quantity of 500  
Reflective Stop Sign (R1-1) Face  
30 x 30, radius not applicable, Type XI  
Reverse Red on White w/ Graffiti overlay

Avery T11500 Sheeting w/ OL-1000 or  
3M Diamond Grade Sheeting

To be delivered to:

Traffic Engineering  
2100 Dickory Ave.  
Harahan, LA 70123  
Attn: Carl Holmes



R1-1  
STOP

\*Reduce spacing 40%

A	B	C	D	E	F
18	.375	6	6 C	3	7.75
24	.625	8	8 C	4	10
<b>C</b> 30	.75	10	10 C	5	12.5
36	.875	12	12 C	6	15
48	1.25	16	16 C	8	20

COLORS: LEGEND - WHITE (RETROREFLECTIVE)  
BACKGROUND - RED (RETROREFLECTIVE)



# Premium Protective Overlay Film

Series 1160

Product Bulletin 1160

December 2013

Replaces PB 1160 November 2011

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## Description

3M™ Premium Protective Overlay Film Series 1160 is designed as a high performance protective transparent overlay for use on signs made from 3M Traffic Safety and Security Division sheetings, films, and images. Series 1160 has been specifically developed for use over signs made from 3M™ Diamond Grade™ and High Intensity Prismatic Sheeting, and 3M's system of matched components, and is recommended for use with these materials. Many types of defacement from vandalism can be cleaned from this film to substantially restore performance and appearance of the overlaid sign. Two configurations are available:

**1160:** with premask

**1160A:** without premask

**Important:** *A complete understanding of these instructions is recommended before sheeting application.*

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## Properties

### A. Color and Transparency

Series 1160 is a clear, colorless film. Application of Series 1160 to a sign fabricated using 3M's matched component systems will preserve the initial and retained minimum retroreflectance specified for the sheeting used to fabricate the sign.

### B. Film

Series 1160 is a high performance fluoropolymer film that provides a barrier and resists staining from common graffiti including paints, permanent marker ink, lipstick, eggs and stickers and allows for easier clean-up.

### C. Adhesive and Liner

Series 1160 utilizes a clear, transparent, and pressure sensitive adhesive and has an easily removable white paper liner.

### D. Premask

To aid film handling, Series 1160 is provided with a white paper premask which is easily peeled away from the film after application. After removing the premask, reroll the sign through the laminator to ensure good adhesion.

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**Application****A. Use Conditions Before Overlaying Film**

1. Air and substrate temperatures should be above 60°F (16°C).
2. Signs must be clean and screen printed inks completely dry.

**B. Equipment**

1. Mechanical squeeze roll applicator – See Information Folder 1.4.
2. Hand squeeze roll applicator – See Information Folder 1.6.
3. A laminating roll with a hardness of 35 durometer (Shore A) is recommended to minimize tenting of Series 1160 over direct apply copy or 3M™ ElectroCut™ Film Series 1170.

NOTE: Application of 1160A Film is best accomplished using a mechanical squeeze roll applicator. Use extra care when handling this film since it is not supported with a premask.

**C. Premasked Film (1160)**

1. Remove the premask AFTER film application to sign by lifting edge of premask with fingernail or knife and pulling premask back over itself at a vary sharp angle using a steady, even tension.

Note: Edge trim BEFORE removing premask.

**WARNING:** Do not allow premask to be exposed to moisture. Premask must be removed before storage or shipment.

**D. Trimming**

1. Use a sharp cutting blade to trim film along edges. It may be helpful to grasp the edge of the unsupported overhanging film to create tension on that portion of the film while trimming.
2. The overhanging portion of the film on the TOP EDGE of the sign may be folded over smoothly and adhered to the back edge of the sign to minimize any water or dirt intrusion along the top edge of the sign. The backside of the sign must be properly cleaned before film is applied.

**E. Additional Processing**

1. DO NOT apply any inks, films, or sheetings in the form of copy or images over 1160 film since this film is designed to repel adhesion of such markings.

**F. Splices**

1. Creating film splices to overlay a sign is not recommended.

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**Packaging and Storage**

- A. Store film in a cool, dry area, preferably 65- 75°F and 30-50 percent relative humidity.
  - B. Faces and signs covered with overlay film do not require slipsheeting. Follow recommendations given in Information Folder 1.11 regarding proper storage, packaging, handling, shipping, and installation.
  - C. Use within one year from date of receipt.
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**Cleaning****A. Materials**

- 1. To remove normal dirt accumulation from signs, use a soft cloth and mild detergent and water solution followed by thorough water rinse.
  - 2. To remove other contaminations such as graffiti defacement, use commercially available cleaning systems recommended for this purpose. **Important: Before using any cleaning materials, read and carefully follow product label use and safety instructions. Test the cleaner on a small area of the sign to determine its suitability and to be sure it does not cause any unwanted results or damage to the performance of the sign.** Avoid the use of formulations containing strong polar solvents such as ketones (acetone, methyl ethyl ketone) or methylene chloride (dichloro methane) and other chlorinated solvents.  

A cleaner such as 3M™ Citrus Cleaner can be effective for removal of common types of defacement such as from permanent marking pens, eggs, and stickers. A solvent such as isopropyl alcohol (IPA), or a 50/50 blend of IPA and xylene can be effective in removing paints and lacquers. Commercially available cleaners can also be highly effective. Although Series 1160 is resistant to strong solvents, prolonged exposure to solvents can result in permanent sign damage.
  - 3. A pressure sensitive tape such as SCPM-3 from 3M also may be effective in removing certain paints and stickers. Simply roll or squeegee the tape firmly over the defaced area and carefully lift away the tape with the defacement from the overlay. Small amounts of residual defacement may require cleaning solutions as stated above to remove small areas that the tape method did not remove adequately. The sign needs to be completely dry for this method to be effective.
  - 4. Always use soft cloths. Do NOT use abrasive brushes, scouring pads or implements to scrape defacement from sign as these will likely damage the sign permanently.
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**3M Basic Product Warranty and Limited Remedy**

3M™ Premium Protective Overlay Film Series 1160 (“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 refunded or replacement of the sheeting.

EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAWY, THE 3M WARRANTY IS MADE IN LIEU OF ALL OTEHR 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

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<b>Health and Safety Information</b>	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.
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<b>General Surface Testing</b>	3M™ Premium Protective Overlay Film Series 1160, when used according to the recommendation of 3M, can be expected to provide the same effective field performance as the sheeting on which it is applied. Series 1160 is designed to enable signs to be cleaned from many common types of defacement caused by vandalism. The film does not prevent defacement but allows the sign to be cleaned in many situations using recommended and conventional cleaners such that the performance and appearance of the original sign is substantially restored. This would include the occasional removal of such markings as common household spray paints, lipstick, permanent pen, eggs, and/or promotional stickers. Use of sharp implements, abrasive devices or certain types of strong and or corrosive chemicals to either deface the sign or used against recommendations to attempt to clean the sign could result in permanent damage to the overlay film and underlying sign which could severely reduce the performance expectation of the original sign. This overlay film is not intended to provide sign protection from impact, cutting, gouging, or pulling of the overlay film from the sign or from the use of strong chemicals that may damage the film and/or the underlying sign. Use of a flame or other high heat source and other such extreme abuse of overlaid signs would very likely severely reduce or destroy the sign's effectiveness permanently.
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<b>Literature References</b>	Information Folder 1.4 Instructions for Operation of Squeeze Roll Applicator
	Information Folder 1.5 Hand Applications Instructions
	Information Folder 1.6 Instructions for Hand Squeeze Roll Application
	Information Folder 1.11 Storage, Maintenance & Removal Instructions

**FOR INFORMATION OR ASSISTANCE  
CALL: 1-800-553-1380**

**IN CANADA CALL:  
1-800-265-1840**

**Internet:  
[www.3M.com/roadwaysafety](http://www.3M.com/roadwaysafety)**

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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**Traffic Safety and Security Division**  
3M Center, Building 225-4N-14  
St. Paul, MN 55144-1000  
1-800-553-1380  
[www.3M.com/roadwaysafety](http://www.3M.com/roadwaysafety)

**3M Canada Company**  
P.O. Box 5757  
London, Ontario N6A 4T1

**3M México, S.A. de C.V.**  
Av. Santa Fe No. 55  
Col. Santa Fe, Del. Alvaro Obregón  
México, D.F. 01210

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Electronic Only



# Diamond Grade™

# DG<sup>3</sup> Reflective Sheeting Series 4000

Product Bulletin 4000

July 2009

Replaces PB 4000 dated August 2008

## Description

3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting 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. DG<sup>3</sup> sheeting is designed to have the highest retroreflective characteristics at medium and short road distances as determined by the R<sub>A</sub> 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 DG<sup>3</sup> fluorescent reflective sheeting provides higher visibility than ordinary (non-fluorescent) colored sheetings.

Applied to properly prepared sign substrates 3M Diamond Grade DG<sup>3</sup> reflective sheeting provides long-term retroreflectivity and durability. Series 4000 sheeting is available in

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

## 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.<sup>2</sup>

### 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.<sup>2</sup>

Table A - Daytime Color Specification Limits<sup>1</sup>

Color	x		y		x		y		Daytime Luminance Limit (Y%)	
	x	y	x	y	x	y	x	y	Min.	Max.
White	.303	.300	.368	.366	.340	.393	.274	.329	27	
Yellow	.498	.412	.557	.442	.479	.520	.438	.472	15	45
Red	.648	.351	.735	.265	.629	.281	.565	.346	2.5	15
Blue	.140	.035	.244	.210	.190	.255	.065	.216	1	10
Green	.026	.399	.166	.364	.286	.446	.207	.771	3	12
Brown	.430	.340	.610	.390	.550	.450	.430	.390	1	9
FY	.479	.520	.446	.483	.512	.421	.557	.442	40	
FYG	.387	.610	.369	.546	.428	.496	.460	.540	60	
FO	.583	.416	.535	.400	.595	.351	.645	.355	20	

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

<sup>2</sup>The 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<sub>A</sub>)**

The values in Table B are minimum coefficients of retroreflection expressed in candelas per lux per square meter (cd/lux/m<sup>2</sup>).

**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<sub>A</sub> in Table B.

**Table B - Minimum Coefficient of Retroreflection R<sub>A</sub> for new sheeting (cd/lux/m<sup>2</sup>)**

<b>-4° Entrance Angle<sup>3</sup></b>				
	Observation Angle <sup>4</sup>			
	<b>0.2°</b>	<b>0.5°</b>	<b>1.0°</b>	
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	
<b>30° Entrance Angle<sup>3</sup></b>				
	<b>0.2°</b>	<b>0.5°</b>	<b>1.0°</b>	
White	220	150	45	
Yellow	165	110	34	
Red	33	23	7	
Green	22	15	5	
Blue	10	7	2	
Brown	7	5	1.0	
Fluorescent Yellow	130	90	27	
Fluorescent Yellow Green	180	120	36	
Fluorescent Orange	66	45	14	

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

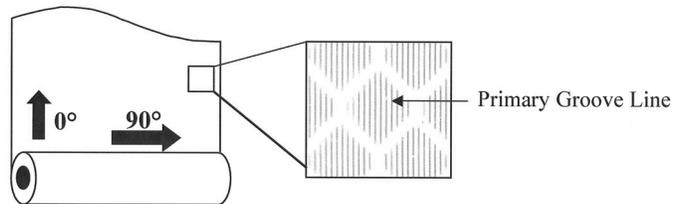
<sup>4</sup> Observation Angle – The angle between the illumination axis and the observation axis.

**Screenprinted Colors and Overlay Films**

For screenprinted 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.

**Entrance Angularity Performance in Regard to Orientation**

3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting is designed to be an effective wide angle reflective sheeting regardless of the orientation on the substrate or ultimate orientation after installation. However, because the efficiency of light return from cube corner reflectors is not equal at all application angles, 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. 3M has designed a special feature into Diamond Grade DG<sup>3</sup>. This special feature takes advantage of increased performance at high entrance angles (>50°). When high entrance angle performance is a requirement for your signs (e.g. Keep Right Symbols) you can obtain this performance easily by specifying the application angle of your completed signs. In these situations the completed sign should have the sheeting positioned at the 0° application angle (downweb direction perpendicular to the road).



**Figure 1**

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° application angle. 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° application angle. (See Figure 1)

Unless the location and/or position calls for extra-wide entrance angularity performance, signs can be fabricated and installed using the application angle that most efficiently utilizes the reflective sheeting.

## Fabrication Lines

The manufacture of prismatic sheeting results in lines being present in the product. In 3M™ Diamond Grade™ DG<sup>3</sup> 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).

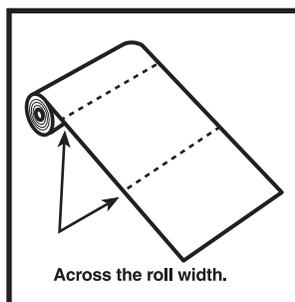


Figure 2 - Fabrication Lines

## Adhesive

Series 4000 sheeting has a pressure-sensitive adhesive that is recommended for application at temperatures of 40°F (4°C) or higher.

## Test Methods for Adhesive and Film

### Standard Test Panels

Unless otherwise specified herein, sheeting shall be applied to test panels in accordance with ASTM D4956-05, section 7.2 and test conditions shall conform to ASTM D4956 section 7.1.

Standard Conditioning – all mounted and unmounted test specimens shall be conditioned for 24 hours at 73°F ± 2°F (23°C ± 1°C) and 50% ± 4% R.H. before testing.

## Properties

### 1. Adhesive

The retroreflective sheeting shall comply with the liner removal and adhesion requirements contained in ASTM D4956-05 sections 7.10 and 7.5 respectively.

### 2. Impact Resistance

Test Method – Apply sheeting to a standard panel 3 inches x 6 inches (7.6 x 15.2cm) and condition. Subject sheeting to a 50 inch-pounds (5.7Nm) impact in accordance with ASTM D2794. Requirement – No separation from panel or cracking outside immediate impact area.

## 3. Shrinkage

The retroreflective sheeting shall comply with the shrinkage requirements contained in ASTM D4956-05 section 7.8.

## 4. Gloss

Test Method – Test in accordance with ASTM D523 using a 60° glossmeter. Requirement – Rating not less than 50.

## 5. 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° C ± 3° C (160°F ± 5°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

Diamond Grade DG<sup>3</sup> sheeting Series 4000 incorporates a pressure sensitive adhesive and should be applied to the sign substrate at temperature of 40°F/4°C or higher by any of the following methods:

Mechanical squeeze roll applicator – see Information Folder (IF) 1.4. Application to extrusions that are wrapped require 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 avoid any cracking.

Hand squeeze roll applicator – see IF 1.6

### Hand Application

Hand application is recommended for legend and copy only. All direct applied copy and border MUST be cut at all metal joints and squeegeed at the joints. Application of Diamond Grade sheeting for complete signs or backgrounds must be done with a roll laminator, either mechanical or hand. See 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.

## Splices

Series 4000 sheeting should 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. A splice gap of up to 1/16 inch is acceptable. This is to prevent buckling as the sheeting expands in extreme temperature and humidity exposure.

If a slight gap is undesirable, the following procedures must be followed:

1. Overlap the sheeting at least one inch, with or without the liner attached.
2. Using a straight edge and a sharp utility knife, cut through both layers of reflective sheeting.
3. Peel back and remove cut remnants. If liner was left on, remove and roll down remaining sheeting.

## Double Faced Signs

Series 4000 sheeting on the first side must be protected by liner paper and FR-2 sponge rubber to prevent damage from contact with bottom rollers on squeeze roll applicators.

## Substrates

For traffic sign use, product application is limited to properly prepared aluminum (see Information Folder 1.7). Extrusions are to be wrapped and flat panel signs are to be carefully trimmed so that sheeting from adjacent panels does not touch on assembled signs. Users are urged to carefully evaluate all other substrates for adhesion and sign durability. 3M™ Diamond Grade™ DG<sup>3</sup> sheeting is designed primarily for applications to flat substrates. Rivets or bolts should also support any use that requires a radius of curvature of less than five inches. Plastic substrates are not recommended where cold shock performance is essential. Sign failures caused by the substrate or improper surface preparation are not the responsibility of 3M.

## Screen Processing

Series 4000 sheeting may be screen processed into traffic signs before or after mounting on a sign substrate, using 3M Process Colors Series 880I (see Product Bulletin 880I) or Series 880N (see Product Bulletin 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. See Information Folder 1.8 for details. Use of other process colors series is not recommended. 3M assumes no responsibility for failure of sign face legends or backgrounds that have been processed with non-3M process colors or 3M process colors other than those listed above.

**Care should be taken to avoid flexing Series**

**4000 sheeting before and especially after screening to eliminate the possibility of cracking from improper handling techniques.**

## Electronic 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.

Letter heights less than 3 inches and stroke widths less than 1/2 inch should not be used. 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.

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

## Cutting

The sheeting may be hand cut or die cut one sheet at a time, and band sawed or guillotined in stacks. Series 4000 sheeting can be hand cut from either side with a razor blade or other sharp hand tool. 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. Edge sealing DG<sup>3</sup> sheeting is generally not required. Following extended exposure, airborne dust particles may become trapped within the row of cut cells along the sheeting edge. This should have no adverse effect on sign performance. If the user chooses to edge seal, series 880I toner should be used.

## 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

The durability of 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting Series 4000 will depend upon substrate selection and preparation, compliance with recommended application procedures, geographic area, exposure conditions, and maintenance. Maximum durability of Series 4000 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 on Sign Substrate Surface Preparation. The user must determine the suitability of any nonmetallic sign backing for its intended use. 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, when used according to 3M recommendations, are generally expected to provide performance comparable to colored reflective sheeting, except for certain lighter colors, such as yellow, gold, or heavily toned colors or blends containing yellow or gold, whose durability depends on how much of each color is used. Dilution of color and atmospheric conditions in certain geographic areas may result in reduced durability.

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

### Cleaning

Signs that require cleaning should be flushed with water, then washed with a detergent solution and 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

3M Diamond Grade DG<sup>3</sup> 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 slipsheeting 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. Packages of finished sign faces must include sufficient nylon washers for mounting.

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. See Information Folder 1.11 for instructions on packing for storage and shipment.

### Installation

Nylon washers are recommended.

### Warranty – Ordinary Colored Sheeting

3M warrants that 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting to be sold by 3M to be used as components for traffic control and guidance signs in the United States and Canada will remain effective for its intended use and meet the stated minimum values for coefficient of Retroreflection for twelve years, for colors used in permanent sign applications. The warranty is subject to the following provisions in Table C.

**Table C – Percentage of Table B Initial R<sub>A</sub> Minimums Guaranteed Over 12 Year Warranty Period (Colors: white, yellow, red, green, blue and brown)**

Warranty Period	Minimum Percentage R <sub>A</sub> Retained
1-7 Years	80%
8-12 Years	70%

R<sub>A</sub> percentage retained above apply to all entrance and observation angles presented in Table B, and shall be measured per ASTM E 810.

All measurements shall be made after cleaning according to 3M recommendations. If a 3M™ Diamond Grade™ DG<sup>3</sup> sign surface is processed and applied to sign blank materials in accordance with all 3M application and fabrication procedures provided in 3M's product bulletins, information folders, and technical memos (that will be furnished to the agency upon request), including the exclusive use of 3M matched component systems, process colors, clear coatings, electronic cuttable films, protective overlay films, and recommended applications equipment; and

If the sign deteriorates due to natural causes to the extent that: 1) the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions by a driver with normal vision, or 2) the coefficient of retroreflection after cleaning is less than the minimums specified in Table C, 3M's sole responsibility and purchaser's and user's exclusive remedy shall be:

If the failure occurs within the first 7 years from the date of fabrication, 3M will, at its expense, restore the sign surface to its original effectiveness. If the failure occurs within the 8th through the 12th year from the date of fabrication, 3M will furnish the necessary amount of 3M Diamond Grade™ DG<sup>3</sup> sheeting to restore the sign surface to its original effectiveness.

### **Warranty – Fluorescent Sheeting**

3M warrants that 3M Diamond Grade DG<sup>3</sup> Fluorescent Reflective Sheeting to be sold by 3M to be used as components for traffic control and guidance signs in the United States and Canada will remain effective for its intended use and meet the stated minimum values for coefficient of Retroreflection for up to 10 years. The warranty is subject to the following provisions in Table D.

**Table D – Warranty Period for Fluorescent Colors.**

<b>Color</b>	<b>Warranty Period</b>
Fluorescent Yellow	10 Years <sup>5</sup>
Fluorescent Yellow Green	10 Years <sup>5</sup>
Fluorescent Orange	3 Years

<sup>5</sup> Due to climatic conditions, the warranty for Alabama, Florida, Georgia, Hawaii, Louisiana, Mississippi, New Mexico, South Carolina and Texas will be 7 years.

If a Diamond Grade fluorescent sign surface is processed and applied to sign blank materials in accordance with all 3M application and fabrication procedures found in 3M's product bulletins, information folders and technical memos (which will be furnished to the agency upon request), including the exclusive use of 3M matched component systems, process colors, clear coatings, electronic cuttable films, protective overlay films, and recommended application equipment; and if the sign deteriorates due to natural causes to the extent that: (1) the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions by a driver with normal vision; or (2) the coefficient of retroreflection, after cleaning, is less than 70% of the initial minimum values in Table B; or (3) the total luminance factors after cleaning, are less than the minimums specified in Table A; 3M's sole responsibility and purchaser's and user's exclusive remedy will be:

For those states with a 10 year warranty (see Table D), if the failure occurs within the first 7 years from the date of fabrication, 3M will, at its expense, restore the sign surface to its original effectiveness. If the failure occurs in the 8<sup>th</sup> through the 10<sup>th</sup> year from the date of fabrication, or year 1-3 for fluorescent orange, 3M will furnish the necessary amount of Diamond Grade fluorescent sheeting to restore the sign surface to its original effectiveness.

For those states with a 7 year warranty (see Table D), if the failure occurs within the first 5 years from the date of fabrication, 3M will, at its expense, restore the sign surface to its original effectiveness. If the failure occurs in the 6<sup>th</sup> or 7<sup>th</sup> year from the date of fabrication, or year 1-3 for fluorescent orange, 3M will furnish the necessary amount of Diamond Grade fluorescent sheeting to restore the sign surface to its original effectiveness.

### Conditions for Warranties

Failure must be solely the result of design or manufacturing defects in the 3M™ Diamond Grade™ DG<sup>3</sup> reflective sheeting and not of outside causes such as: improper fabrication, handling, maintenance or installation; use of process colors, thinner, coatings, or overlay films and sheetings not made by 3M; use of application equipment not recommended by 3M; failure of sign substrate; exposure to chemicals, abrasion and other mechanical damage from fasteners used to mount the sign; snow burial; collisions, vandalism or malicious mischief.

3M reserves the right to determine the method of replacement.

Replacement sheeting will carry the unexpired warranty of the sheeting it replaces.

Claims made under this warranty will be honored only if the signs have been dated at the time of sheeting application, which constitutes the start of the warranty period.

Claims made under this warranty will be honored only if 3M is notified of a failure within a reasonable time, (reasonable information requested by 3M is provided, and 3M is permitted to verify the cause of failure.)

### Limitations of Liability and Remedies

3M's liability under this warranty is limited to replacement as stated herein, and 3M assumes no liability for any incidental or consequential damages, such as lost profits, business or revenues in any way related to the product regardless of the legal theory on which the claim is based. THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING OR OF PERFORMANCE, CUSTOM OR USAGE OF TRADE.

### Literature Reference

Instructions for Squeeze Roll Applicator	IF 1.4
Hand Application Instructions	IF 1.5
Instructions for Hand Squeeze Roll Applicator	IF 1.6
Sign Base Materials	IF 1.7
Color Application Instructions	IF 1.8
Cutting, Matching, Premasking, and Prespacing Instructions	IF 1.10
Storage Maintenance, and Removal Instructions	IF 1.11
Process Colors	PB 880I
3M™ Process Color	PB 880N

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

**FOR INFORMATION OR ASSISTANCE**

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