

SUTPHEN CORPORATION

SALES TECHNICAL BULLETIN

CHEVRON STRIPING – REAR BODY

NFPA 1901 2009 Edition includes specific information about what must be used for chevron striping on the rear of all fire apparatus. This information is specific to area required to be covered, angle of stripes, width of stripes, and the color of stripes. Below is an excerpt of this information from the NFPA standard:

15.9.3.2 At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees.

15.9.3.2.1 Each stripe in the chevron shall be a single color alternating between red and either yellow, fluorescent yellow, or fluorescent yellow-green.

15.9.3.2.2 Each stripe shall be 6 in. (150 mm) in width.

15.9.3.3 All retroreflective materials required by 15.9.3.1 and 15.9.3.2 shall conform to the requirements of ASTM D 4956, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Section 6.1.1 for Type I Sheeting.

15.9.3.3.1 All retroreflective materials used to satisfy the requirements of 15.9.3.1 that are colors not listed in ASTM D 4956, Section 6.1.1, shall have a minimum coefficient of retroreflection of 10 with observation angle of 0.2 degrees and entrance angle of -4 degrees.

15.9.3.3.2 Fluorescent yellow and fluorescent yellow-green retroreflective materials used to meet the requirements of 15.9.3.2 shall conform to the minimum requirements specified for yellow Type I Sheeting in ASTM D 4956, Section 6.1.1.

15.9.3.3.3 Any printed or processed retroreflective film construction used to meet the requirements of 15.9.3.1 and 15.9.3.2 shall conform to the standards required of an integral colored film as specified in ASTM D 4956, Section 6.1.1.

The following pages outline some of the variations of rear body chevron striping (materials and colors) that comply with the NFPA standard as well as changes to current offerings and additions of new offerings.

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Occasionally we receive requests for colors, sizes, and coverage areas that do not meet the NFPA standard. These materials **MUST** follow the NFPA standard. **NO EXCEPTIONS.** If a customer is adamant about a different color, size, or coverage area that does not meet NFPA, Sutphen will NOT supply or install any portion of the graphics package. The customer will be responsible for installing **all** lettering, striping, and chevron striping to make the truck NFPA compliant. We will install all steps, lights, and accessories on the rear of the body/platform and they will have to remove all of those items to install the chevron striping. They must also sign a Statement of Exceptions form as outlined in NFPA 1901 2009 Edition 4.21. This states that they must make it NFPA compliant before it goes into service. A copy of this form can be obtained from your Sales Application Engineer. Please note that this is NOT to be used as a way to get around the NFPA standard and have Sutphen install something that doesn't meet the standard.

4.21 Statement of Exceptions. The entity responsible for final assembly of the apparatus shall deliver with the fire apparatus either a certification that the apparatus fully complies with all requirements of this standard or, alternatively, a Statement of Exceptions specifically describing each aspect of the completed apparatus that is not fully compliant with the requirements of this standard at the time of delivery.

4.21.1 The Statement of Exceptions shall contain, for each noncompliant aspect of the apparatus or missing required item, the following information:

- (1) A separate specification of the section of the applicable standard for which compliance is lacking
- (2) A description of the particular aspect of the apparatus that is not in compliance therewith or required equipment that is missing
- (3) A description of the further changes or modifications to the delivered apparatus that must be completed to achieve full compliance
- (4) Identification of the entity that will be responsible for making the necessary postdelivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance with this standard

4.21.2 Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating mutual understanding and agreement between the parties regarding the substance thereof.

4.21.3 An apparatus that is delivered subject to a Statement of Exceptions other than a certification of full compliance shall not be placed in emergency service until the apparatus has been modified as necessary to accomplish full compliance with this standard.

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CHEVRON STRIPING – REAR BODY HOW TO MEET THE STANDARD

*The following examples are **NOT** NFPA compliant:*



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CHEVRON STRIPING – REAR BODY HOW TO MEET THE STANDARD (AVAILABLE OFFERINGS)

3M SCOTCHLITE

(#1172 TRANSPARENT RED/#680-81 LEMON YELLOW)

Up until recently, the printed ruby red and lemon yellow 3M Scotchlite option has been the most cost effective solution to provide coverage on the rear of the apparatus. We have found that the overlaying of a #1172 Transparent Red film over a #680-81 Lemon Yellow base better meets the intent of the NFPA requirements. Naturally this will increase the cost of this option due to the increase in material and labor. This overlay configuration is currently being applied to all units in place of the former printed configuration. ***The only location that the printed 3M Scotchlite material will be utilized/permitted for chevron striping is the interior cab door panels.***

EXAMPLES:



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CHEVRON STRIPING – REAR BODY HOW TO MEET THE STANDARD (AVAILABLE OFFERINGS)

3M DIAMOND GRADE

(#1172 TRANSPARENT RED/#3983 FLUORESCENT YELLOW GREEN)

Sutphen, along with many of you in our dealer network, have experienced a significant amount of issues with the 3M Diamond Grade material. The material has shown to be prone to cracking around steps, bolts, etc. and will even discolor (turn white) when being kicked by boots as individuals climb up and down the rear of the apparatus. This is due to the crushing that happens to the triangular cube corners embedded in the material when they are compressed. Even though we have had considerable issues with this material, our industry still pushes the Diamond Grade name. We will still offer it, however, it will come at a premium price due these issues.

EXAMPLES:



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CHEVRON STRIPING – REAR BODY HOW TO MEET THE STANDARD (AVAILABLE OFFERINGS)

3M DIAMOND GRADE (#1172 TRANSPARENT RED/#3991 YELLOW)

For those customers that do not want the fluorescent look, 3M also offers a more standard yellow color.

EXAMPLES:



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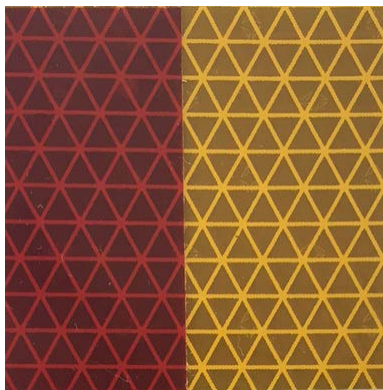
CHEVRON STRIPING – REAR BODY HOW TO MEET THE STANDARD (AVAILABLE OFFERINGS)

ORAFOL REFLEXITE V98 (NEW OFFERING!)

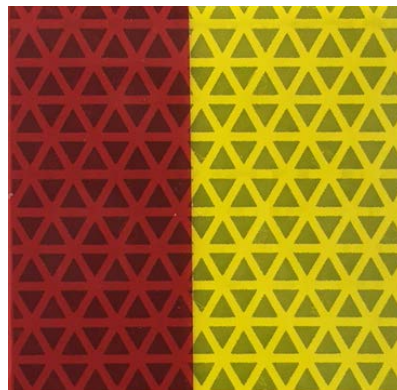
Due to the issues we have seen with the 3M Diamond Grade, Sutphen went in search of a suitable replacement offering. We are pleased announce a new offering of Orafol Reflexite. Orafol is a large supplier to the fire/EMS industry and offers, what we feel, is a product that is much better suited to our application. The Reflexite material is much thinner and much more pliable than the 3M Diamond Grade material. It is also not subject to the same discoloration resulting from an impact.

Orafol offers three different colors of Reflexite that meet the requirements of NFPA. Those colors are #018 YELLOW, #L1 FLUORESCENT YELLOW, and #L2 FLUORESCENT GREEN. Each will have #031 transparent red film overlay. The #018 yellow closely matches the 3M Diamond Grade #3991 yellow and the #L2 fluorescent green closely matches the 3M Diamond Grade #3983. It is hard to tell the difference unless the materials (or apparatus) are directly side-by-side.

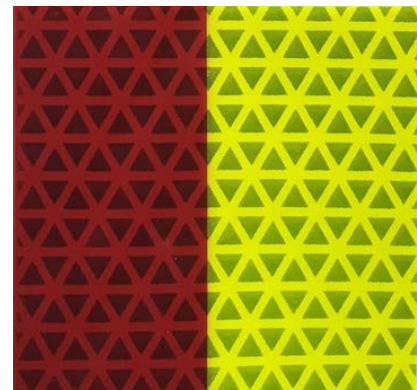
Below are samples of the three different Reflexite offerings with the transparent red overlay:



#018 YELLOW



**#L1 FLUORESCENT
YELLOW**



**#L2 FLUORESCENT
LIME**



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CUSTOMER APPROVAL SHEET

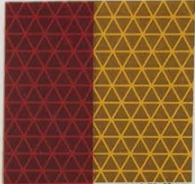
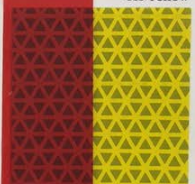

Due to the necessity of having confirmation of the desired chevron striping material and color early on in the production process, Sutphen is implementing a new customer approval sheet. Our customers will need to sign this sheet at the preconstruction meeting for their apparatus (or very shortly thereafter). These will be available at each preconstruction meeting. If you need these for your own preconstruction meeting with a customer, you can pick some up in the Dublin Sales Dept. or you can request them through your assigned SAE. There will be one to cover the 3M products (both Scotchlite and Diamond Grade) and one to cover the Orafol Reflexite products. Please remember (and convey to your customers), that these brands and materials are not the same price.

Once approved, these will go on file with the facility building that apparatus. These numbers will also be listed in the shop order for their apparatus. Below is an example of this approval sheet that you will begin to see us implement at all facilities.



Sutphen Chevron Striping

Customer Name _____ Date _____ HS # _____

Yellow _____	 018 Yellow
Fluorescent Yellow _____	 L1 Fl Yellow
Fluorescent Lime _____	 L2 Fl Lime

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CHEVRON STRIPING – LOCATIONS OTHER THAN REAR BODY

NFPA mandates that the only the rear of the apparatus is to have red and yellow chevron striping. Other locations, such as the front bumper, interior cab door panels, faces of shelving and trays, etc. are not subject to the same NFPA requirements. Our customers are free to chose the colors they prefer for these locations.

IMPLEMENTATION

With the next release of data into the configurator/SQS2 (along with the price increase), you will see some changes to the chevron striping options and how they are selected. For instance, on pumpers, you will be required to have the NFPA 50% minimum coverage. If your customer desires that the rear compartment door to be covered, there will be a separate option for that. Likewise, the panel above the rear compartment door will also be a separate option. This allows you to tailor the striping options to meet your customer's needs.

The system will also provide color options available for each of the locations. For those locations other than the rear of the apparatus, an "OTHER" selection will be available that will require you to manually enter the desired colors. There will NOT be an "OTHER" option available for the rear of the apparatus as nothing other than the provided options in the drop-down menu will be permitted.

PLEASE NOTE:

After much consideration, Sutphen Corporation will **no longer allow DEALER SUPPLIED/INSTALLED** chevron striping on the rear of our apparatus. Having the striping installed by each of the production facilities helps us to ensure that our products are uniform (offering the same brands, materials, and colors of striping) and ensures that there are no delays in our production process. You are still welcome to provide the rest of the lettering and striping package to your customers as part of your dealer provided and installed items. If you have proposed/sold a unit with dealer supplied/installed chevron striping, please let your assigned SAE know so they can work with you to resolve.

If you have any questions, please contact your assigned Sales Application Engineer.