



Sign Face Materials

TIPS

I. Guide for the Collection of Warranties on Sign Face Materials

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Purpose

This guide provides districts with guidance on understanding and collecting the warranties on signs. Sign sheeting is a highly engineered product designed to visibly convey traffic control and direction information during the daytime and at night. Over the years, changing technology of sign sheeting has made it more efficient in night visibility but has also made it more prone to damage in handling.

TxDOT obtains road signs from several different sources:

- construction projects
- maintenance projects
- GSD purchases from commercial sign shops
- GSD purchases from TDCJ
- TxDOT district purchases
- TxDOT sign shops where pre-processed sign blanks and background sheeting is supplied by GSD from TDCJ and
- full fabrication of signs from TxDOT sign shops.

In all of these cases, the sign sheeting carries a warranty to perform for between 5 and 10 years.

What Are the Warranty Provisions for Sign Sheeting?

DMS-8300, "Sign Face Materials," requires replacement of signs if they do not last for the stated performance period. The performance period is different depending on the type of sheeting used in sign fabrication. Table 1 from the DMS shows the warranty period.

Table 1. Warranty Period (in years)

Sheeting Type	Period for Complete Sign Replacement and Installation (Phase 1)	Additional Period for Sheeting Material Replacement Only (Phase 2)
C, D	7	3
E	5	2



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This table shows that if a sign using Type E sheeting fails within 5 years, or a sign using Type C or D sheeting fails within 7 years, the supplier must replace it in its entirety. If it fails after this time, but in less than 7 years (for Type E) or 10 years (for Type C or D), the supplier must replace the sheeting so that TxDOT can fabricate a sign to replace the failed one.

The warranty includes the use of one manufacturer's sign face material (sheeting, EC and black film, and screen ink) applied to a different manufacturer's sign face material. If a failure occurs, assignment of warranty responsibility is to the manufacturer whose material fails. For example, if the sheeting or film used for the legend separates from the sheeting attached to the sign blank, the manufacturer of the legend material will be responsible.

What Constitutes a Warranted Sign Failure?

DMS-8300 explains what constitutes warranted sign failure. It states:

"The sign face material is unsatisfactory if:

- it deteriorates due to natural causes to the extent that the sign is ineffective for its intended purpose (Example: when the sign is viewed from a moving vehicle under normal day and night driving conditions) or
- it shows any of the following defects:
 - cracks discernible with the unaided eye from the driver's position, while in an outside lane at a distance of 50 ft. (15 m) or greater from the sign
 - peeling in excess of 1/4 in. (6.4 mm)
 - shrinkage in excess of 1/8 in. (3.2 mm) total per 48 in. (1.2 m) of sheeting width,
 - fading or loss of color to the extent that color fails to meet the requirements in ASTM D 4956 or
 - loss of reflectivity to a level below 80% for Types C, D, and E sheeting of the minimum values specified in ASTM D 4956 or in this Specification for new sheeting when measured at the angles specified for each type."

In summary, a warranted failure is from normal wear and tear on sign sheeting due to environmental causes while the sign is still in the warranty period.

What Is Not a Warranted Sign Failure?

Signs can be non-effective for a variety of reasons. Some common non-warranty issues are:

- gunshots
- paint (paintball guns)
- graffiti
- vehicle impacts and
- signs that wear out after exceeding their warranty life.

How Do We Prevent Damaging Signs in Handling?

There are other reasons that signs can be non-effective. Mishandling signs in shipment, storage and installation can result in damage to sign faces from:

- storing signs improperly in a moist environment (signs may stick to each other, damaging the sheeting when they are separated; mildew can discolor the sign face)
- storing signs in horizontal stacks (weight crushes the sheeting material, destroying night reflectivity) and
- dragging signs on one another (scratching, gouging and crushing the sheeting destroys daytime appearance and nighttime reflectivity).

Item 636 addresses storage and handling of signs to prevent damage. In a Special Provision, Article 636.3.B, "Storage and Handling," states:

"Ship, handle, and store completed sign blanks and completed signs so that corners, edges, and faces are not damaged. Damage to the sign face that is not visible when viewed at a distance of 50 ft., night or day, will be acceptable. Replace unacceptable signs.

Store all finished signs off the ground and in a vertical position until erected. Store finished sheet-aluminum substrate signs in a weatherproof building. Extruded aluminum and fiberglass substrate signs may be stored outside."

This requirement pertains to the contractor when furnishing signs under Item 636, but these are good directions to apply to all signs from all sources.

Additionally, for signs that TxDOT personnel store, transport and install, there are some specific recommendations.

Storage

Store traffic signs under cover in a dry place and arranged so that warping or disfigurement does not occur. Shelves and vertical compartments are usually constructed in such a manner that the reflectorized face does not come into contact with the adjacent signs. Store signs in a vertical position with air spaces between all signs. Do not use waxed paper to protect stored signs.

Transport

Take care in transporting signs from storage to field location, since the sign face is a soft material and can be damaged very easily. Wrap signs individually in heavy paper or separate by grooved tracks. Do not stack signs horizontally.

Installation

Install signs in compliance with the Sign Mounting Details (SMD) standard sheets.

How Do We Protect the Integrity of the Sign Warranty, and When Does the Warranty Start?

To be able to enforce a warranty, we must make sure signs are not damaged during shipment, storage or installation, either by TxDOT or by a contractor. The warranty period begins upon manufacture; however, the enforceable performance period is adjusted according to the following.

1. For signs manufactured by either TxDOT forces or for GSD purchase, the warranty requirements are effective immediately upon manufacture.
2. For signs manufactured for TxDOT projects, the warranty requirements do not become effective until final acceptance of the project. TxDOT's enforcement of the warranty starts after final acceptance on a project.

DMS-8300.6.B, "Field Performance," states:

"Sign face materials processed, applied, stored, and handled according to the manufacturer's recommendations (or as required in this Specification, when there is an exception to the manufacturer's recommendations), must perform satisfactorily for the number of years stated in Section 8300.6.C, 'Minimum Performance Period,' for that sign face material. The warranty requirements go into effect upon final acceptance by the Department. The Department will adjust the performance period to deduct the time between application of the sign face material to the sign and Department acceptance.

The sign face material manufacturer's warranty does not relieve the Contractor for unacceptable work or improper handling, storage, or installation. The Contractor is fully responsible for all materials and work until final acceptance by the Department."

What Are the Guidelines for Final Acceptance of Signs on Projects?

The districts should conduct a routine drive-through of the signs placed on a project, both during the day and at night. The daytime inspection should check for proper placement and installation of the signs on the right of way, as well as any obvious damage or defects within the sign face. The districts should check the back of each sign for the identification decals to ensure that the sign face manufacturer and sign fabrication date information are punched.

The nighttime inspection of the signs should check for uniform appearance within the background and within the legend and borders. Areas that appear dead or are not uniform in color may be cause for rejection of the sign, if the non-uniform appearance is significant enough for the sign to be illegible. The nighttime inspection will also reveal damage from shipping and handling that may not be apparent from the daytime inspection. This damage will appear as dark streaks or marks across the sign face where the sheeting is damaged.

Signs rejected prior to final project acceptance are the responsibility of the contractor and do not fall under the warranty provisions of the reflective sheeting. These signs should be replaced at the contractor's expense.

What Are the Guidelines for Monitoring In-Service Signs?

Inspect all signs, including supports, twice a year for:

- position
- damage
- legibility
- obvious indications of structural distress or failure and
- general condition.

Conduct one of the two annual inspections at night to check legibility and reflectivity (see “Inspection Report”).

Make inspections using two people, so one can take notes while the other drives.

All personnel who frequently travel the highways should be instructed to report any obscured or damaged signs. Maintenance personnel should be alert at all times, observing signs for legibility, position and minor damage that can be addressed by immediate remedial action.

Inspection Report

Documentation of sign inspections is important to a successful sign program. Sign inspectors should fill out an inspection report for each performed inspection. The reports should be filed at the district office with a copy retained by the maintenance supervisor. Typically, a sign inspection report should include:

- the date
- the maintenance section
- the supervisor’s signature
- the inspector’s signature
- the roadways checked and findings
- immediate action taken
- future action needed and
- any comments.

To document inspections, inspectors may use the “Sign and Striping Inspection Report Form” found in Appendix A of the Traffic Operations Division (TRF) *Signs and Markings Manual*. A copy of the form is attached for your reference and use (see section V). The form may be photocopied as necessary. If a different format or a more detailed report is preferred, districts may produce their own form.

If you have any questions about the contents of the *Signs and Markings Manual* or the “Sign and Striping Inspection Report Form,” contact Michael Chacon, TRF, at 512/416-3120.

When There Is a Warranty Issue, What Does the Warranty Require the Sign Face Material Manufacturer to Do?

There are two phases to the performance period, Phase 1 requires total sign replacement and Phase 2 requires only sign face material replacement.

If a sign fails in Phase 1 of the warranty period, requiring replacement of the sign, DMS 8300.6.D, “Manufacturer’s Replacement Obligation,” states:

“The manufacturer must cover the costs of replacement of the sign on the roadway or of restoring the sign surface to its original effectiveness as determined by and at no cost to the Department for materials or labor.

Replacement sign face materials must:

- be the same type originally specified unless otherwise approved or directed
- meet all the requirements of this Specification and
- appear on the MPL.

Schedule with designated Department personnel, within 30 days of notification of potential replacement obligation, an on-site investigation to determine if the sign face material manufacturer’s obligation exists. Fulfill all obligations within 120 days after determination of obligations are made. The Department may replace signs where uncompleted

obligations occur and may bill the manufacturer for all Department costs in performing the manufacturer’s replacement obligation.”

If a sign fails in Phase 2 of the performance period, requiring only sign face material replacement, the Sign Face Material Manufacturer is responsible for replacing the sign face materials so that TxDOT can fabricate a replacement sign.

How Do We Process a Warranty Claim?

When signs fail under warranty, there could be several scenarios:

- isolated failure of a few signs, which should be handled through district channels, or
- widespread failure due to a manufacturing defect, affecting several signs or multiple districts, requiring a coordinated effort and prompt attention from a division approach.

Use the following steps to file a Warranty Claim with the Sign Face Material Vendor (including TDCJ signs):

Filing a Warranty Claim with the Sign Face Material Vendor

Step	Action
1	District personnel complete the “Sign Face Materials Warranty Claim Report” form (see section II) and forwards it to the district’s Director of Traffic Operations with a copy to the Director of CST-M&P for monitoring purposes.
2	<ul style="list-style-type: none">• <i>Small Volumes</i> - For warranty claims that involve less than 200 ft² of signage, the claim process will be handled at the district level. The Director of Traffic Operations will notify the vendor of the suspect signs and will work with the vendor to identify the nature of the material failure and to process any replacement signs or sign face materials under the warranty provision. See the attached sheet for full instructions.• <i>Large Volumes</i> - For warranty claims that involve 200 ft² or more of signs, the Director of Traffic Operations will work in conjunction with CST-M&P to process the claim. Once it has been determined that a material failure covered under warranty has occurred, CST-M&P will notify the vendor of the problem and will work with the district’s Traffic Operations office to resolve the claim. See the attached sheet for full instructions
3	Upon acceptance of the replacement signs or sign face materials, the district will notify the vendor by letter with a copy to CST-M&P.
4	Vendors who do not resolve any warranty claims will be subject to litigation and removal from the MPL by CST-M&P.

Contact Information

If you have questions on any part of this process, you may contact:

- Johnnie Miller, CST-M&P, at 512/506-5889 or
- Michael Chacon, TRF, at 512/416-3120.

II. Sign Face Materials Warranty Claim Report

Date Warranty Claim Detected: _____

Report filed by: _____
(If reported by citizen – **See A below**)

Sign Location(s): _____

Approximate size of sign(s) (ft²): _____

Reference the label on the back of the sign to obtain the following information:

Warranty Period: From _____ To _____

Fabrication Date: _____ Installation Date: _____

Substrate Sheeting Manufacturer: _____

Film/Ink Manufacturer (if applicable): _____

Legend Sheeting Manufacturer (if applicable): _____

Reason for Warranty Claim (describe Warranty Claim): _____

Warranty Obligation:

Complete Sign Replacement and Installation _____
Additional Period for Sign Face Material Replacement Only _____

A. Reserved for complaint call or letter from citizen

Name: _____

Address: _____

Telephone: _____

Date first detected: _____ (Confirmation letter recommended)

Completed by: _____

Printed Name: _____

III. Notifying Vendor of Sign Face Materials Warranty Claim for Signage Totaling <200 ft²

Within 30 days of completion of the “Sign Face Materials Warranty Claim Report,” the district will notify the vendor by formal letter of the warranty claim using the information provided on the report. The letter will give the date the warranty claim was detected and the obligation required by the warranty described in DMS-8300. Instruct the vendor to schedule an on-site investigation within 30 days with designated Department personnel. The site visit will be to verify that a sign face material manufacturer’s obligation exists. The vendor must fulfill all obligations within 120 days after determination of an obligation.

Vendor Warranty Claim to Respond

If the vendor fails to respond to the letter of notification, the district should send a second letter advising of the sign face materials warranty claim, with a copy of the first letter attached for reference. The vendor will have another 10 working days to respond.

If the vendor fails to provide any form of response, the district should refer the matter to CST-M&P for assistance. For those instances where the vendor and TxDOT cannot agree on the nature of the sign failure, the assessment rendered by CST-M&P will govern. If the vendor continues to disregard any warranty claim requests, the matter may be referred to the Office of General Counsel for litigation, and the vendor may be removed from the MPL.

Sign Replacement Completee

Upon completion of sign replacement, the TxDOT inspector will approve the material and installation work. Within 10 days, the district will notify the vendor that the obligation under warranty has been met. A formal letter will be used for this purpose, with a copy to CST-M&P.

IV. Notifying Vendor of Sign Face Materials Warranty Claim for Signs Totaling >200 ft²

Within 30 days of completion of the “Sign Face Materials Warranty Claim Report,” the district will notify CST-M&P of the warranty claim using the information provided on the report. CST-M&P will then schedule an evaluation of the suspect signs with the vendor to determine if there is a warranty claim to process. Once it has been determined that a material failure covered by warranty has occurred, the district’s Director of Traffic Operations will notify the vendor of the problem by letter and will work with CST-M&P to resolve the issue.

The letter will give the date the warranty claim was detected and the obligation required by the warranty described in DMS-8300. The letter should instruct the vendor to fulfill all obligations within 120 days. The vendor will have 10 working days to respond with their intentions to address the sign face materials warranty claim.

Vendor Warranty Claim to Respond

If the vendor fails to respond to the letter of notification, the district’s Director of Traffic Operations will send a second letter advising of the sign face materials warranty claim, with a copy of the first letter attached for reference. The vendor will have 10 working days to respond.

If the vendor fails to provide any form of response, the district will refer the matter to CST-M&P for assistance. For those instances where the vendor and TxDOT cannot agree on the nature of the sign failure, the assessment rendered by CST-M&P will govern. If the vendor continues to disregard any warranty claim requests, the matter may be referred to the Office of General Counsel for litigation, and the vendor may be removed from the MPL.

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Upon completion of sign replacement, the TxDOT inspector will approve the material and installation work. Within 10 days, the district will notify the vendor that the obligation under warranty has been met. A formal letter will be used for this purpose with a copy to CST-M&P.

Figure 1. Old Decal Design

TxDOT												
C				Fabrication								T
J	F	M	A	M	J	J	A	S	O	N	D	
	200		201		202		203		204			
	0	1	2	3	4	5	6	7	8	9		
Sheeting Manufacturer - Substrate												
A	B	C	D	E	F	G	H	J	K	L	M	
Sheeting Manufacturer - Legend												
A	B	C	D	E	F	G	H	J	K	L	M	
Installation Date												
				0	1	2	3					
	0	1	2	3	4	5	6	7	8	9		
J	F	M	A	M	J	J	A	S	O	N	D	
	200		201		202		203		204			
	0	1	2	3	4	5	6	7	8	9		

Figure 1. Old identification decal placed on back of signs (Reference Special Provision to Item 643, “Sign Identification Decals”).

Figure 2. Updated Decal Design

TxDOT												
C	Fabrication Date											T
J	F	M	A	M	J	J	A	S	O	N	D	
	200		201		202		203		204			
	0	1	2	3	4	5	6	7	8	9		
Sheeting MFR - Substrate												
A	B	C	D	E	F	G	H	J	K	L	M	
Film/Ink MFR												
A	B	C	D	E	F	G	H	J	K	L	M	
Sheeting MFR - Legend												
A	B	C	D	E	F	G	H	J	K	L	M	
Installation Date												
				0	1	2	3					
	0	1	2	3	4	5	6	7	8	9		
J	F	M	A	M	J	J	A	S	O	N	D	
	200		201		202		203		204			
	0	1	2	3	4	5	6	7	8	9		

Figure 2. Updated identification decal placed on back of signs (Reference Special Provision to Item 643, “Sign Identification Decals”).

V. SIGN AND STRIPING INSPECTION REPORT

(found in the Signs and Markings Manual, Appendix A)

Maintenance Section: _____ Inspection Date: _____

Supervisor: _____

Reported by: _____

Roadways Checked and Findings: _____

Immediate Action: _____

Action Needed: _____

Comments: _____

