
Specifications for Standard Highway Sign Materials, Fabrication and Supply



Ministry of Transportation

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1.0 General

This Specification sets out the requirements for the fabrication of all highway signs on provincial highways. Highway signs are divided into the following categories; regulatory, warning, temporary warning, information, service & attraction, school, pedestrian, parking, construction and guide signs. This specification does not cover electronic signs or sign support structures. For the purpose of this specification a “highway sign” includes the substrate, sheeting and copy or symbol, but excludes the sign support structure.

All highway signs on provincial highways must be retro-reflective to show the same colour, shape and message at night as they appear in daytime. Retro-reflection is obtained by using sign sheeting material specifically manufactured for highway signs. (refer to Sec. 2.0)

Unless otherwise stated the most current edition of the reference standard shall be used.

2.0 Retro-reflective Sheeting

Highway signs shall be fabricated using enclosed lens, encapsulated lens or prismatic lens sign sheeting material, meeting:

- American Society for Testing and Materials (ASTM) *D4956 Standard Specification for Retro-reflective Sheeting for Traffic Control*

Table 2.1 Sign Sheeting Cross Reference

Generic Term	Trade Names	ASTM Reference	Sign Pattern Manual Reference
Enclosed Lens	Engineering Grade	Level I	ENG
Encapsulated Lens	Hi-intensity Grade	Level III	HI
Prismatic Lens	Diamond Grade	Level IX	DI

3.0 Sign Colors

The specifications for colours of all retro-reflective sign sheeting have been established in *ASTM D4956 Standard Specification for Retro-reflective Sheeting for Traffic Control*. All colors used on highway signs must conform to this specification.

4.0 Substrate

Highway signs may be fabricated using sheet aluminum, plywood or extruded aluminum. The *Sign Pattern Manual for British Columbia* specifies the substrate material, sign designs, colours and dimensions for all standard highway signs. All highway signs supplied for use on the provincial highway system must conform to this manual.

The dimensions of the sign blank shall be within 1.5+/- mm of those specified and the finished sign shall be flat within a maximum allowable deflection of .005(D) where (D) is the maximum dimension of the sign blank in any direction. The manufacturer shall provide highway signs conforming in quality and accuracy of detail to the dimensional and tolerance requirements of the specification. Where no tolerances are specified, the standard of workmanship shall be in accordance with normally accepted good practice.

4.1 Sheet Aluminum Substrate:

Sheet aluminum shall be a nominal thickness of 2mm (0.082") flat sheet tension leveled, sign grade aluminum alloy 5052-H38, conforming to the requirements of *ASTM B209M, Specification for Aluminum and Aluminum-Alloy Sheet and Plate*.

Thin sheet aluminum for sign overlays¹ must also meet the above specification, however the nominal thickness is 1.6mm (0.063")

¹ When overlay sections are added to an existing sign, the overlay sheeting material shall be equivalent to the original sign sheeting.

Standard size (150mm high) street name signs shall be 6.4mm (1/4") flatbar alloy 6061-T6-511 OR extruded aluminum for standard street name (T-Bone) shape #71615 alloy 6063-T6

Oversized street name signs (230mm high) shall be shape #73247 alloy 6063-T6

4.1 Plywood Substrates:

Plywood substrate shall be 14 mm exterior grade Medium Density Overlaid 2 sides (MDO) meeting or exceeding the standard described in *CSA 0121M-1978*

Plywood edges must be sealed and both the edges and back of the plywood sign shall be painted green (pantone 349C) with one coat of exterior oil based enamel paint over a compatible primer per Sec. 635.26 of the *Standard Specification for Highway Construction*.

4.2 Extruded Aluminum Substrate:

When specified, extruded aluminum must be Alloy 6036-T6 conforming to *Alcan Shape No.73247* with anodize treatment and shall conform to *ASTM B221M "Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes."*

Extruded highway signs must be supplied with all mounting hardware including nuts, bolts, washers "J" clips, angle bar, flat bar or "T" bar as required, as detailed in *Standard Specifications for Highway Construction – Section 635*, but excluding sign support posts, davits and structures.

5.0 Screening Ink

Ink used for silk screening must be designed for use on highway signs and recommended by the sheeting manufacturer. Inks shall be warranted to be effective for a period of time commensurate with the warranted life of the retro-reflective sheeting.

6.0 Manufacturer's Identification:

All highway signs shall be clearly and permanently labeled (using durable, weather resistant material) or engraved with an identification coding. The coding shall appear in characters 6-10 mm high on the lower right back of the sign and shall be carried out in such a manner that the front face of the sign is not damaged. The manufacturer shall include the following information on the label:

- Manufacturer's name.
- Month and Year of Manufacture.
- Brand of sign sheeting material and preferably Ink # if applicable
- MoT Sign number on guide signs

7.0 Sign Finish Quality:

Highway signs sheeting material shall be correctly applied in accordance to the sheeting manufacturer's recommendations and industry accepted quality practices. The sheeting material must be applied so that it does not contain air pockets and the sheeting shall not have holes, tears, scrapes, compressed cells or patches. Any joints must be sealed in accordance to the sheeting manufacturer's recommendations. The sign fabricator must ensure the sign are adequately protected from damage during shipping.

Edges of all substrate material shall be de-burred to provide a smooth finished edge.

8.0 Warranty

The manufacturer shall provide a replacement warranty for each traffic sign covering all defects in material and labour for a minimum of:

- 7 years for highway signs fabricated using enclosed lens sheeting ("engineering grade")

- 10 years for highway signs fabricated using encapsulated (“Hi-intensity”) or prismatic (“Diamond”) lens sheeting.

The warranty shall be unrestricted and survive the expiration of the MoT highway maintenance agreements.

References:

- ***ASTM B221M Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.***
- ***ASTM B209M, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.***
- ***ASTM D4956 Standard Specification for Retro-reflective Sheeting for Traffic Control***
- ***CSA 0121M-1978 Douglas Fir Plywood***
- ***Sign Pattern Manual, British Columbia***
Sign size, shape, colours and sheeting grade:
- ***Manual of Standard Traffic Signs & Pavement Marking***
Sign application standard and policy
- ***Standard Specifications for Highway Construction***, Section 635 – Electrical and Signing,
Field installation details and components for highway signs, structures

Ministry documents may be viewed or obtained in electronic format at the Ministry website:

<http://www.gov.bc.ca/tran/> go to “Reports and Publications”