

# **TENDER DOCUMENTS**

## **SUBSECTION 6.72 SMALL SIGNAGE**

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### **Appendix 6.72-I** TYPE OF RETROREFLECTIVE FILM FOR SIGNAGE

## **SUBSECTION 6.72 SMALL SIGNAGE**

### **6.72.1 GENERAL**

- 6.72.1.1 This subsection describes the requirements relating to the dismantling, disposal, reinstallation, supply of materials, fabrication and permanent installation of small signage (regulatory, informational and warning) covered by this Contract.
- 6.72.1.2 Any special requirements pertaining to small signages covered by this Contract are set out on the plans and in Section 4 *Specific Technical Conditions*.
- 6.72.1.3 Any requirements relating to steelwork are described in subsection 6.41 *Steelwork*.
- 6.72.1.4 Any requirements relating to aluminum work are described in subsection 6.43 *Aluminum Work*.
- 6.72.1.5 Any requirements relating to electrical works are described in subsection 6.50 *Electrical Works*.

### **6.72.2 MEASUREMENT UNITS**

- 6.72.2.1 The measurement units and respective symbols thereof used in this subsection are described as follows:

<b>Measurement Unit</b>	<b>Designation</b>	<b>Symbol</b>
length	millimeter	mm

### **6.72.3 REFERENCE STANDARDS**

- 6.72.3.1 The Contractor shall carry out all small signage work in accordance with the following standards and documents to which the provisions of this Contract are added:

6.72.3.1.1 (ASTM) ASTM International:

- ASTM A123/A123M *Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products;*
- ASTM A153/A153M *Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware;*
- ASTM D4956 *Standard Specification for Retroreflective Sheeting for Traffic Control.*

6.72.3.1.2 (CSA) Canadian Standards Association:

- CAN/CSA G40.20/G40.21 *General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.*

6.72.3.1.3 (MTQ) Ministère des Transports du Québec :

- MTQ – *Cahier des charges et devis généraux (CCDG)*;
- MTQ – *Normes – Ouvrages routiers, Tome I Conception routière*;
- MTQ – *Normes – Ouvrages routiers, Tome II Construction routière*;
- MTQ – *Normes – Ouvrages routiers, Tome III Ouvrages d'art*;
- MTQ – *Normes – Ouvrages routiers, Tome V, Signalisation routière, volumes 1 et 2*;
- MTQ – *Normes – Ouvrages routiers – Tome VII Matériaux :*
  - Norme 6201 *Boulons, tiges d'ancrage, écrous et rondelles en acier*;
  - Norme 6401 *Aluminium*;
  - Norme 14101 *Pellicules rétro réfléchissantes*.

6.72.3.1.4 Quebec Official Publisher:

- *Highway Safety Code (R.S.Q., c. C-24.2)*;
- *Safety Code for the construction industry (R.S.Q., c. S-2.1, r.6)*;
- *Regulation respecting road signs (S.Q., c. C-24.2, r.4.1.2)*.

## 6.72.4 MATERIALS

### 6.72.4.1 GENERAL

6.72.4.1.1 All materials supplied by the Contractor shall comply with the standards listed in Article 6.72.3 *Reference standards*.

6.72.4.1.1.1 The aluminum alloy used to fabricate the panels shall comply with MTQ standard 6401 *Aluminium*.

6.72.4.1.1.2 The panel dimensions and tolerances shall be those indicated on the plans.

### 6.72.4.2 SMALL SIGNAGE PANELS

6.72.4.2.1 The small signage panels shall be made of aluminum of the thickness indicated on the plans and shall comply with Tome III, chapter 6 *Structures de signalisation, d'éclairage et de signaux lumineux* of MTQ.

6.72.4.2.2 The retroreflective film intended to cover the aluminum sheets shall have a type of retroreflective coefficient that comply with Appendix 6.72-I *Type of Retroreflective Film for Signage* of this subsection and with MTQ standard 1401.

6.72.4.2.3 The reflective films used for lettering, borders and symbols of the regulatory and warning signage panels shall comply with MTQ standard 14101.

6.72.4.2.4 For regulatory, warning and workzone small signage panels, the dimensions of pictograms, signages, letters, borders or any other symbol shall comply with MTQ standard 14101.

6.72.4.2.5 When the panels and tab signages are rectangular, the concordance described in MTQ standards applies. The tab signages shall have the same width as the panels under which they are placed.

#### 6.72.4.3 ACCESSORIES

6.72.4.3.1 This subsection does not necessarily contain a full and detailed description of all the accessories needed to perform the work. The Contractor shall therefore supply and install, according to best practices, all accessories needed to perform a complete job.

6.72.4.3.2 All hardware required to perform the work shall be new.

#### 6.72.4.4 PANEL FASTENERS

6.72.4.4.1 All bolts, fasteners, nuts and other accessories needed to fix the panels shall comply with MTQ standard 6201.

#### 6.72.4.5 POSTS

6.72.4.5.1 All small signage panels shall be installed on breakaway posts that appear on MTQ's list of approved supports for small signage (HOM-6310-101-13 *Support cédant sous l'impact – Petite signalisation*).

#### 6.72.4.6 STORAGE

6.72.4.6.1 The conditions under which the materials are stored shall comply with the manufacturer's recommendations. The film or other signage components altered in the course of the work shall be replaced by the Contractor, at its expense.

### 6.72.5 EXECUTION OF WORK

#### 6.72.5.1 GENERAL

6.72.5.1.1 When small signage panels are being relocated, the Contractor shall obtain authorization from the Engineer to reuse the existing panels and posts.

6.72.5.1.2 If, in the opinion of the Engineer, the panels and posts to be relocated cannot be reused, the Contractor shall supply new materials and dispose of the components that cannot be reused.

#### 6.72.5.2 SHOP DRAWINGS

6.72.5.2.1 At least fourteen (14) days prior to the commencement of fabrication, the Contractor shall submit to the Engineer, for review, the shop drawings, assembly plans and construction plans as well as the design notes signed and sealed by an engineer member of the *Ordre des Ingénieurs du Québec (OIQ)*.

### 6.72.5.3 CLEANING OF PANELS

6.72.5.3.1 The entire panel surface shall, before the application of the coating, be cleaned and cleared of all traces of rust, grease, oil or dust. The treatment of the aluminum prior to applying the reflective coating shall be carried out according to the reflective coating manufacturer's recommendations.

### 6.72.5.4 INSPECTION AND DELIVERY

6.72.5.4.1 Once the fabrication of the small signage panels completed and prior to installation thereof, the panels shall be inspected by the Engineer. If the panels are found different than the indications on the plans, they shall be rejected and shall be replaced at the Contractor's expense.

### 6.72.5.5 INSTALLATION OF PANELS

6.72.5.5.1 The panels shall be installed in accordance with the *Regulation Respecting Road Signs*. The installation shall comply with standardized plan DN-V-1-001 *Détails d'installation des panneaux* of MTQ and shall be authorized by the Engineer.

6.72.5.5.2 The installation of new panels and the replacement of existing panels shall be done with new fasteners supplied by the Contractor.

6.72.5.5.3 For supports carrying three (3) or more panels, the Contractor shall supply and install horizontal aluminum bars in order to assemble the panels so they can withstand wind loads.

### 6.72.5.6 INSTALLATION OF POSTS

6.72.5.6.1 Before planting the posts, the Contractor shall carry out all necessary checks to ensure that utilities or other buried structures are not damaged.

6.72.5.6.2 The number of posts per panel shall be sufficient to ensure good rigidity. The posts shall sink at least 900 mm into the ground.

## 6.72.6 QUALITY CONTROL

6.72.6.1 Once the work is completed, the Engineer will conduct a daylight inspection in the presence of a representative of the Contractor in order to check the location, height, visibility and appearance of the panels and a nighttime inspection to check the orientation and glare of the panels, and any other visible criteria of any kind, whether dimensional or functional.

6.72.6.2 Any defects in the panels including, without limitation, any defects discovered during the two (2) inspections referred to in paragraph 6.72.6.1 above, shall be corrected by the Contractor at its expense, to the satisfaction of the Engineer.

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**END OF SUBSECTION**

**APPENDIX 6.72-I**

**TYPE OF RETROREFLECTIVE FILM FOR SIGNAGE**

**(1 PAGE)**

## TYPE OF RETROREFLECTIVE FILM FOR SIGNAGE

Type of Signage	Type of Retroreflective Film
<b>Regulatory Signs</b>	IV
Stop (P-10)	XI
Yield (P-20)	XI
Crossbuck	IX
<b>Do not enter</b>	XI
<b>Warning Signs</b>	XI fluo
School zone approaching (D-265)	VII fluo
School advance warning signage or school crossing (D-270-1)	VII fluo
Delineator (D-300)	VII fluo
Alignment chevron (D-301)	XI
<b>Workzone Signs</b>	VII fluo
<b>Information Signs</b>	IV
Distressed vehicle detector (I-298)	IV
Roadside overhead signage	IV
Overhead signage on gantry	XI
<b>Traffic Control Signals</b> (visibility screen)	IX