B908 - METAL RAILINGS FOR STRUCTURES (OPSS 908)

908.1 GENERAL

Metal railings are constructed on structures to meet the barrier requirements of the Canadian Highway Bridge Design Code (CHBDC), CSA-S6.

Inspector guards are constructed on structures to meet Occupational Health and Safety act requirements to protect inspectors from fall hazards.

908.2 REFERENCES

- Canadian Highway Bridge Design Code (CHBDC), CSA-S6
- Structural Manual
- Ontario Building Code (OBC), O. Reg. 332/12 under the Building Code Act, 1992, S.O. 1992, c. 23

908.3 TENDER ITEMS

Item Code	Title	Col Type	U.O.M.	PQP
0908-XXXX	One Tube Railing	Normal	m	Y
0908-XXXX	Two Tube Railing	Normal	m	Y
0908-XXXX	Three Tube Railing	Normal	m	Y
0908-XXXX	Four Tube Railing	Normal	m	Y
0908-XXXX	Thrie Beam Bridge Railing	Normal	m	Y
0908-XXXX	Multi Use Path (MUP) Railing	Normal	m	Y
0908-0110	Inspector Guard	Normal	m	Y

908.4 SPECIFICATIONS

The requirements for metal railings and inspector guards are contained in OPSS 908, July 2025.

908.5 SPECIAL PROVISIONS - None

908.6 STANDARD DRAWINGS

Drawings for metal railings and inspector guards on structures are contained in MTO Structural Standard Drawings.

908.7 DESIGN

Refer to the Structural Manual and Structural Standard Drawings for barriers and railings on structures.

Design requirements for bridge railings are contained in the CHBDC.

908.7.1 Inspector Guard

The inspector guard is for structures with exposed heights exceeding 2.4 m and has limited application. The inspector guard is to be used for the safety of bridge inspectors and is not allowed to be used on structures accessible to the general public. Where the structure is accessible to the general public, a suitable pedestrian or bicycle railing shall be used.

Design requirements for inspector guards shall meet the requirements for guardrails of Industrial Establishments. The loading and structural design shall be in accordance with the OBC and the Structural Manual.

908.7.2 Bicycle Railing

Design requirements for bicycle railings are contained in the CHBDC and OBC. Bicycle railings separated by a suitable barrier and not exposed to highway traffic are not required to meet vehicle collision load provisions.

The bicycle railing Structural Standard Drawing 110-22 does not show reinforcing steel in the anchorage detail for clarity. The anchorage is Condition A and relies on curb reinforcing steel to develop required resistances; site specific curb details shall include reinforcing steel and be shown in the contract drawings.

The Structural Standard Drawing has not been designed for CSA-S6 congregating location loads. Where bicycle railing is required for congregating locations, the Structural Standard Drawing shall not be used unless permitted by the Head, Regional Structural Section.

The Structural Standard Drawing is for aluminum railing and includes an anodized finish. The typical finish is “Clear” but other colour options are available on a contract basis as required by the Head, Regional Structural Section.

Colouring is subject to anodizer availability and shall be checked prior to including the applicable colour note on the Structural Standard Drawing:

Clear - “ALL EXPOSED ALUMINUM SHALL BE GIVEN CAUSTIC ETCH FOLLOWED BY AN ARCHITECTURAL CLASS I ANODIC COATING CONFORMING TO AAMA 611, DESIGNATION AA-M10C22A41.”

Light Bronze - “ALL EXPOSED ALUMINUM SHALL BE GIVEN CAUSTIC ETCH FOLLOWED BY AN ARCHITECTURAL CLASS I ANODIC COATING CONFORMING TO AAMA 611, DESIGNATION AA-M10C22A44. THE COLOUR SHALL BE LIGHT BRONZE.”

Medium Bronze - “ALL EXPOSED ALUMINUM SHALL BE GIVEN CAUSTIC ETCH FOLLOWED BY AN ARCHITECTURAL CLASS I ANODIC COATING CONFORMING TO AAMA 611, DESIGNATION AA-M10C22A44. THE COLOUR SHALL BE MEDIUM BRONZE.”

Dark Bronze - “ALL EXPOSED ALUMINUM SHALL BE GIVEN CAUSTIC ETCH FOLLOWED BY AN ARCHITECTURAL CLASS I ANODIC COATING CONFORMING TO AAMA 611, DESIGNATION AA-M10C22A44. THE COLOUR SHALL BE DARK BRONZE.”

Black - “ALL EXPOSED ALUMINUM SHALL BE GIVEN CAUSTIC ETCH FOLLOWED BY AN ARCHITECTURAL CLASS I ANODIC COATING CONFORMING TO AAMA 611, DESIGNATION AA-M10C22A44. THE COLOUR SHALL BE BLACK.”

6061-T6 aluminum may experience yellowing or streaking so critical architectural applications should consider preparing test samples to confirm anodized colouring meets project requirements prior to fabrication of full sections of railing.

908.8 COMPUTATION

908.8.1 Item Payment Basis

Metal railings for structures are Plan Quantity Payment items and are measured in metres.

Inspector guards for structures are Plan Quantity Payment items and are measured in metres.

908.8.2 Sources of Information

The main source of information for the tender items above is the Regional Structural Section.

908.8.3 Method of Calculation

The unit of measurement is in metres from end to end of railing or inspector guard. Where a railing or inspector guard system overlaps with an adjacent railing or inspector guard system that is paid for under another tender item, the measurement shall extend from the end of the subject railing system as if the adjacent rail did not exist. Concrete exterior end wall panels and wingwall panels are not considered to be part of a railing system and are not included in the length of a railing system.

908.9 DOCUMENTATION

908.9.1 Contract Drawings

Railings are indicated on the contract drawings using all appropriate Structural Standard Drawing numbers as applicable.

Inspector guards are detailed on the structural drawings using all appropriate Structural Standard Drawing numbers as applicable. Detailing shall be in accordance with the Structural Manual.

908.9.2 Quantity Sheets

Metal traffic barrier and railing installations on structures, and inspector guards are recorded on Quantities Structure Q-Sheet. For multiple structures on the same contract, separate tender items are used for each applicable structure.

908.9.3 Documentation Accuracy

Stations and quantities for metal railings and inspector guards for structures are recorded to the nearest metre.