

**ITEM 04568.5601 M - GALVANIZED STEEL GUARDRAIL**  
**ITEM 04568.5602 M - GALVANIZED STEEL TOEBOARDS**

**DESCRIPTION:**

The work shall consist of furnishing and installing galvanized steel guardrails and toeboards, at the locations indicated on the contract plans. The work shall consist of providing anchor bolts, drilling holes into supporting wide flanges.

**MATERIALS:**

Materials for this work shall meet the following requirements of the latest edition of the New York State Department of Transportation Standard Specifications:

|                                     |        |
|-------------------------------------|--------|
| Structural Steel                    | 715-01 |
| Stainless Steel Connecting Products | 715-16 |
| Galvanizing                         | 719-01 |

**Steel Pipe:** All pipe shall be welded or seamless pipe meeting the requirements of ASTM A58 Grade B, with a phosphorus content of not more than 0.1 percent.

The hydrostatic test called for in the above specifications will not be required.

The manufacturer shall furnish the Engineer with two certified copies of the physical tests and chemical analyses of the metal used in the manufacture of all pipe and steel.

All steel pipe shall be galvanized in accordance with subsection 719-01, Type 1.

**Pipe Fittings:** The slip-on pipe fittings shall be furnished by an acceptable manufacturer or approved equal.

Acceptable manufacturers are:

Kee Industrial Products Inc. (Kee-Klamp) Buffalo, NY.

Hollaendar Manufacturing Co. (Speed-Rail) Cincinnati, Ohio

R&B Wagner, Inc. (Aluminum Slip-On Fittings) Butler, Wisconsin

**Pipe Forgings:** All forgings for piping components shall meet the requirements of ASTM A105, for standard weight pipe.

**ITEM 04568.5601 M - GALVANIZED STEEL GUARDRAIL**  
**ITEM 04568.5602 M - GALVANIZED STEEL TOEBOARDS**

The structural steel for the toeboard shall conform to ASTM A709, Grade 36, and be galvanized in accordance with Subsection 719-01, Type 1.

**Bolts, Nuts and Washers:** All bolts, nuts, and washers fastening a component of guardrail to steel shall conform to the requirements of SAE J-429-Grade 5 and shall be plated in accordance with ASTM B-633.

The Contractor shall supply the Engineer with two copies of the manufacturer's certificate that the material meets the above requirements.

**CONSTRUCTION DETAILS:**

**General:** The guardrail and toeboard shall be fabricated and erected in accordance to approved shop drawings. All railing shall have either structural slip-on fittings or other quick connect type rail to post connections. The top rail shall be made continuous over a minimum of two posts. All posts shall be continuous.

The slip-on fittings shall be fastened to the galvanized steel sections with ASTM – Grade 5 bolts, nuts, and washers galvanized in accordance with Subsection 719-01, Type II.

**Shop Drawings:** Shop drawings shall be provided in accordance with the requirements of the New York State Steel Construction Manual (NYSSCM), except that the drawings shall be submitted to the Engineer for review and approval.

**Welding:** All welding shall be performed in accordance with the New York State Steel Construction Manual.

**Installation of Guardrail:** The guardrail system shall have the rail posts attached to the top of wide flange. Wide flange shall be fastened with anchor bolts. The anchor bolts shall meet ASTM-Grade 5 requirements.

**Toeboard:** The toeboard is to be fastened to each rail post as per the details in the contract plans.

**METHOD OF MEASUREMENT:**

**Guardrail**

The quantity of work to be paid for under this item will be measured as the number of meters measured along the centerline of the top rail between the extreme outer limits of the galvanized steel guardrail, furnished and placed as shown on the plans.

**ITEM 04568.5601 M - GALVANIZED STEEL GUARDRAIL**  
**ITEM 04568.5602 M - GALVANIZED STEEL TOEBOARDS**

**Toeboard**

The quantity of work to be paid under this item will be measured as the number of linear meters measured along the top edge of the toeboard, furnished and placed as shown on the plans.

**BASIS OF PAYMENT:**

The unit price bid per linear meter shall include the cost of furnishing all labor, materials and equipment, including but not limited to nuts, washers and miscellaneous hardware necessary to complete the work.