

**721 - HANDRAIL FOR BRIDGES AND OTHER USES**

**SECTION 721**

**HANDRAIL FOR BRIDGES AND OTHER USES**

**721.1 DESCRIPTION**

Fabricate and erect the metal handrails according to the Contract Documents.

**BID ITEMS**

Bridge Handrail (\*) (\*\*)

Handrail (\*) (\*\*)

\* Type

\*\* Size

**UNITS**

Linear Foot

Linear Foot

**721.2 MATERIALS**

Provide materials that comply with **DIVISION 1600**.

**721.3 CONSTRUCTION REQUIREMENTS**

**a. General.** Fabricate, weld, paint and erect the metal handrails according to **DIVISION 700**.

Before ordering or fabricating the materials, submit shop drawings to the State Bridge Office for approval (**SECTION 105**).

Store handrail materials above ground on platforms or skids, with spacer blocks to keep the members separated. Protect the stored materials from contaminants and moisture.

Before placing concrete, protect the portion of the anchor bolts above the finished concrete line with wrappings or coatings of a release material. Use a template to verify the correct spacing and alignment of the anchor bolts. Remove the wrappings or coatings before erecting the handrails.

Before erecting the handrail posts, true the concrete surfaces where the posts will rest. Grind the concrete surfaces for proper seating, when required.

Erect the handrail by groups of posts corresponding to the length of each rail piece. Fully support handrail by posts at the time it is placed. The maximum deviation allowed from the correct alignment is 1/8 inch. Abrupt breaks in alignment must be corrected. Drifting of holes during assembly is permitted only to bring the parts into position. Do not enlarge the holes or distort the metal. Use beveled washers on beveled surfaces to give full bearing to both the head and nut. After the handrail is erected, align it and tighten the nuts on the anchor bolts.

**b. Steel Handrail.** Erect the handrail to line and grade using surveying instruments. Shim the handrail posts as required. For shims 1/8 inch or greater, use either steel or sheet lead shims. Only use 1 shim per post.

Unless the handrail is galvanized, apply 1 shop coat of paint after fabrication and one finish coat of paint after erection. Apply 2 shop coats of paint to surfaces that are inaccessible after assembly or erection. See **SECTION 714** for painting requirements.

**c. Aluminum Handrail.** Erect the handrail to line and grade using surveying instruments. Shim the handrail posts between the post and concrete surfaces, or between the post and base plate, as required. Use aluminum shims. If the shims are in contact with another metal or the concrete surfaces, coat the shims with caulking compound, or paint the shims with paint specifically used on aluminum, or use a synthetic rubber gasket.

**721.4 MEASUREMENT AND PAYMENT**

The Engineer will measure handrail from the center of end post to center of end post by the linear foot.

Payment for the "Bridge Handrail" or "Handrail" at the contract unit prices is full compensation for the specified work.