

be cast into the masonry and positioned by means of templates or other methods that will hold them securely in the correct position until concrete has set. The method of setting shall allow for proper finishing of concrete bearing areas.

Anchors that are not designed to project through bearing plates shall be checked for proper projection above the masonry bearing area immediately prior to placement of bearing plates and beams. Nuts on anchor bolts at expansion ends shall be adjusted to permit free movement of the span.

Angles for anchor assemblies to be attached to sides of concrete beams shall not be installed until beams have received their full dead load and supporting falsework has been removed.

408.04—Measurement and Payment.

Metal bearing and expansion plates and anchors will be measured by shop scales in pounds of actual material placed according to the plans. When not a separate pay item, the Department will include the weights of plates and anchors in the weight of structural steel or reinforcing steel for payment. When a pay item, bearing plates will be paid for at the contract unit price per pound and shall include elastomeric and other flexible bearing pads. Bearings and anchors for prestressed concrete deck units will be paid for as provided in Section 405. The cost of bedding and preparation for metal bearing plates shall be included in the prices for superstructure items. This price shall include furnishing material, galvanizing, painting, and lubricating.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Bearing plates	Pound

SECTION 409—STEEL GRID FLOORS

409.01—Description.

This work shall consist of constructing a steel grid floor.

409.02—Materials.

Materials shall conform to the requirements of Section 227.

409.03—Procedures.

The floor shall conform to the requirements for the design of steel grid floors of AASHTO's *Standard Specifications for Highway Bridges*.

- (a) **Arrangement of Sections:** Where main elements are normal to the center line of the roadway, units shall generally be of such length as to extend over the full width of any roadway up to 40 feet. In every case, units shall extend over at least three panels. Where joints are required, ends of main floor units shall be welded at joints over their full cross-sectional area or otherwise connected to provide full continuity in conformance with the manufacturer's recommendations.

Where main elements are parallel to the center line of the roadway, sections shall extend over at least three panels, and ends of abutting units shall be welded over their full cross-sectional area or otherwise connected to provide full continuity in accordance with the approved design.

- (b) **Provision for Camber:** Steel units so rigid that they will not readily follow the camber required shall be cambered in the shop. To provide a bearing surface normal to the crown of the roadway, the stringers shall be canted or provided with shop-welded beveled bearing bars. If beveled bars are used, they shall be placed along the centerline of the stringer flange, in which case the design span length shall be governed by the width of the bearing bar instead of the width of the stringer flange.

Longitudinal stringers shall be cambered at the mill or provided with bearing strips so that the completed floor after dead-load deflection shall conform to the longitudinal camber shown on the plans.

- (c) **Field Assembly:** Areas of considerable size shall be assembled before the floor is welded to its supports. Main elements shall be made continuous, and sections shall be connected together along their edges by welding of bars. Connections shall be approved by the Engineer.
- (d) **Connection to Supports:** The floor shall be connected to its steel supports by welding. Before any welding is done, the floor shall be loaded to make a tight joint with full bearing or clamped down. The location, length, and size of the welds shall be as approved but in no case less than the manufacturer's standards.

Ends of main steel units of the slab shall be securely fastened together at sides of the roadway for the full length of the span by means of steel plates or angles welded to ends of main units or by encasing ends with concrete.

- (e) **Welding:** Welding shall conform to the requirements of Section 407.
- (f) **Damaged Galvanized Coatings:** Damaged coatings shall be repaired in accordance with the requirements of Section 233.

- (g) **Concrete Filler:** Floors with open bottom flanges shall be provided with bottom forms of metal or wood to retain the concrete filler.

If metal form strips are used, they shall fit tightly to bottom flanges of floor units and be placed in short lengths extending approximately 1 inch beyond the edge of each support. The form shall be such as will result in the adequate bearing of the slab on the support.

Concrete shall be placed and cured in accordance with the requirements of Section 404 and thoroughly consolidated by vibrating the steel grid floor. The vibrating device and manner in which it is operated shall be subject to the approval of the Engineer.

- (h) **Painting:** Steel grid Flooring furnished without galvanizing but with a shop coat of paint, shall be painted in accordance with the requirements of Section 411.

If a structural steel plate is used on the bottom of a filled floor, the bottom surface of the plate shall be painted in accordance with the requirements of Section 411.

409.04—Measurement and Payment.

Steel grid floors will be measured in square feet of surface area, complete-in-place, and will be paid for at the contract unit price per square foot.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Steel grid floor	Square foot

SECTION 410—RAILINGS AND PARAPETS

410.01—Description.

This work shall consist of furnishing and installing railings, bridge median barriers, and concrete parapets reasonably true to the line, grade, and dimensions shown on the plans or as established by the Engineer.

410.02—Materials.

- (a) **Concrete** shall conform to the requirements of Section 217. In the event the Contractor places concrete by the extrusion method, the slump may be