

5.13 STEEL AND IRON

5.13.01 GENERAL

This section covers the inspection, sampling and testing of steel and iron products.

5.13.02 REINFORCING STEEL

(a) General.

Reinforcing steel, either plain or epoxy coated, furnished for Kansas projects is produced at mills outside the boundaries of the State. Most of the steel is cut to length and bent to shape at fabricating plants located inside Kansas or near the State boundaries, although some fabricated steel is produced at more distant points.

(b) Basis of Acceptance.

See Standard Specifications Manual Subsections 1601 and 1602.

5.13.03 WELDED STEEL WIRE FABRIC.

(a) Basis of Acceptance.

See Standard Specifications Manual Subsection 1603 and Special Provision 90M/P-132 (latest revision).

(b) Reporting.

Acceptance reports are issued by the Field Engineer.

5.13.04 STRUCTURAL STEEL

(a) Shapes and Plates.

(1) Basis of Acceptance.

See Standard Specifications Manual Subsection 1605 and Special Provision 90M/P-48 (latest revision).

(2) Reporting.

Acceptance reports issued by engineers who inspect items fabricated from structural steel also include the acceptance of the steel used in the fabrication of such units.

(b) Structural Steel Fasteners.

(1) Basis of Acceptance.

See Standard Specifications Manual Subsection 1614 and Special Provision 90M/P-65 (latest revision).

- (2) Reporting.

Acceptance reports covering fasteners for bridge connections, splices and sign supports are issued by the Materials and Research Center. Acceptance reports for uncoated fasteners for other uses will be issued by the Field Engineer.

- (c) Structural Steel for Bearing Piles.

- (1) Basis of Acceptance.

See Standard Specifications Manual Subsection 1607.

- (2) Reporting.

The approved Type A certification is entered into CMS by the Engineer of Tests and the original is filed at the Materials and Research Center.

The Field Engineer issues a report showing the acceptance or rejection of the piling.

5.13.05 DEEP BEAM GUARDRAIL AND FITTINGS

- (a) General.

These materials are manufactured at points outside the State and may be shipped directly to the project or shipments may be made from materials suppliers' warehouses located within the State or near its borders.

- (b) Basis of Acceptance.

See Standard Specifications Manual Subsection 1616 and Special Provision 90M/P-223 (latest revision).

- (c) Inspection and Sampling

Guardrail terminal sections, rail elements and hardware including bolts, nuts and washers must be visually inspected by the Field Engineer for conformance with dimensional requirements, including gage of metal, width, configuration of corrugations, condition of galvanized coating and identification of the shipment with the manufacturer's certification.

- (d) Reporting.

The Field Engineer issues reports covering all guardrail material shipped to the project which can be accepted on the basis of a Type D certification and visual inspection.

5.13.06 STEEL SHELLS FOR CAST-IN-PLACE CONCRETE PILES

- (a) Basis of Acceptance.

See Standard Specifications Manual Subsection 1607.

- (b) Reporting.

The approved Type A certification is entered into CMS by the Engineer of Tests and the original is filed at the Materials and Research Center.

The Field Engineer issues a report showing the acceptance or rejection of the shells.

5.13.07 MISCELLANEOUS STEEL PRODUCTS

- (a) Group I. The following steel products are in this group:

Steel Sign Posts.

See Standard Specifications Manual Subsection 1620.

Pipe.

See Standard Specifications Manual Subsection 1618.

Structural Tubing (when galvanized).

See Standard Specifications Manual Subsection 1606.

(1) Reporting: Acceptance reports are issued by the regional laboratory to cover tested material shipped from manufacturer's stock and by the Materials and Research Center covering the results of tests conducted on samples representing individual shipments.

- (b) Group II. The steel products in this group are as follows:

Steel Castings.

See Standard Specifications Manual Subsection 1612.

Steel for Sheet Piling.

See Standard Specifications Manual Subsection 1609.

Corrugated Metal Sheet Piling and Sheet Metal for Wash Checks.

See Standard Specifications Manual Subsection 1609.

Anchor Bolts.

See Standard Specifications Manual Subsection 1613.

Gray Iron Castings.

See Standard Specifications Manual Subsection 1610.

Shear Connector Studs.

See Standard Specifications Manual Subsection 1615.

Steel Encasement Pipes.

See Standard Specifications Manual Subsection 1618.

Malleable Iron Castings.

See Standard Specifications Manual Subsection 1611.

5.13.08 **MATERIALS FOR FENCING**

(a) General.

These instructions cover the inspection, sampling and testing of metal products used in the construction of fences.

(b) Basis of Acceptance.

See Standard Specifications Manual Subsection 1619.

(c) Methods of Inspection, Sampling and Testing.

Fencing materials are usually inspected and sampled at the point of production or in distributor's warehouses by a representative of the Department and samples are submitted to the Materials and Research Center for testing. The materials are subjected to visual inspection to determine uniformity and condition of coating, fabrication, workmanship and dimensional requirements.

Laboratory numbers, letters or other marks are placed on random bundles, packages or individual items to identify the lot as being the same material that was covered by the inspection and sampling procedure.

All fencing material that arrives on the project without inspection must be inspected, sampled and tested before it is erected. See Paragraph **5.19.02** (12) for sampling instructions. Previously inspected material should be visually inspected by the Field Engineer for identifying marks and damage during handling and shipment. If necessary, marks should be placed on unmarked packages, bundles or units in the shipment to aid in their identification as they are distributed along the project or transferred to other projects.

(d) Reporting.

Acceptance reports based on the results of tests are issued from the Materials and Research Center.