SECTION 1620

MATERIALS FOR FENCING

1620.1 DESCRIPTION

This specification governs the ferrous and nonferrous materials and components utilized in the construction of fences of various types.

1620.2 REQUIREMENTS

a. General. Fencing materials and components governed through this specification must comply with **subsection 1620.2b** unless specified otherwise in the Contract Documents. The height and design of any fence is to be as specified in the Contract Documents. This also applies to, but is not restricted to, wire diameters, mesh size, tension bar dimensions, selvage type, brace and tension bands, post caps, sleeves, rail ends, and other miscellaneous and accessory components associated with the type of fence specified.

b. Material Specifications.

(1) Provide chain link fence that complies with AASHTO M 181. Provide framework (post and rail) components that comply with ASTM F 1043 for heavy industrial fence with Group IA or IC only permitted when pipe is utilized.

For Chain Link Fence (Special), provide pipe or tubing for framework that complies with the following:

- Nominal Pipe Size (NPS) as shown on the Contract Documents.
- Outside diameter and wall thickness corresponding to Extra Strong Pipe (Schedule 80).
- ASTM A 53, Grade B; ASTM A 500, Grade B; or ASTM A 501.
- Other pipe or tubing will be approved provided it meets the dimensional requirements and the tensile and chemical requirements of one of the materials listed above.

Do not use continuous, furnace butt-welded (Type F) pipe.

Provide accessory and miscellaneous components that comply with ASTM F 626. Components not specifically addressed in this or the other specifications must comply with the Chain Link Fence Manufacturer's Institute (CLFMI) Product Manual, CLF 2445. Tension bars are to have nominal dimensions of not less than 3/16 inch by 3/4 inch and may not be more than 2 inches shorter than the height of the chain link fabric they are applied to. Brace and tension bands are to have nominal dimensions of not less than 3/32 inch by 7/8 inch and comply with the cross section profile of the posts they are to be applied to. Truss rods are to have a minimum nominal diameter of 3/8 inch.

The terminology applied to chain link fencing is to be consistent with ASTM F 552.

The corrosion protection coating requirements of AASHTO M 181 apply to all components and supersede less stringent requirements that may occur in other specifications.

(2) Zinc coated and aluminum coated steel barbed wire must comply with AASHTO M 280 and AASHTO M 305 respectively.

All barbed wire is to have dual line wires, each of 0.1 inch minimum nominal diameter, with four point round wire barbs, 0.08 inch minimum nominal diameter wire, at a nominal spacing of 5 inches. The dual line wires must have a unidirectional twist and have the barbs applied to one line wire only unless they are interwoven through the line wires. A Class 3 coating level is required for zinc coated barbed wire.

(3) Zinc coated and aluminum coated steel woven wire fence fabric must comply with AASHTO M 279 and ASTM A 584 respectively. A Class 3 coating level is required for zinc coated woven wire fence fabric, and the minimum permissible line wire breaking strength is 4280 N.

(4) Steel fence posts and assemblies other that those addressed previously in item **subsection 1620.2b.(1)** must comply with AASHTO M 281.

(5) Zinc coated steel wire strand for use in conjunction with fences must comply with ASTM A 475.

(6) Provide gates that comply with ASTM F 900 for swing type and ASTM F 1184 for slide type. The wire or fabric utilized in the fence construction is to be applied to the gate frame unless specified otherwise through **subsection 1620.2a**. It will be an option to require hot dip galvanizing of the frame after weld construction.

(7) Accessory and miscellaneous components not referenced previously in a specification or this

subsection must be zinc coated in compliance with ASTM A 153 for hot dip galvanizing or ASTM B 633 for electrodeposited zinc on threaded fastener components of nominal size of less than 1/2 inch diameter. Mechanically deposited zinc coatings on larger fastener components is permitted, however, other than the zinc coating application method, all ASTM F 2329 must be complied with. Fastener components must comply with **SECTION 1616**. Aluminum coating is acceptable when permitted and regulated by the specification that governs the component.

1620.3 TEST METHODS

Conduct all tests required by the applicable AASHTO, ASTM, or other material specifications of **subsection 1620.2b**. Coating thickness may be measured by any one of the methods specified in ASTM B 633 and by eddy current methods, ASTM E 376 (B 244 may also be useful as a technique guideline), provided that appropriate calibration procedures and standards have been applied. The magnetic induction and eddy current methods are nondestructive in nature and are preferred. Destructive techniques, i.e., coating removal, may be utilized as referee methods.

1620.4 PREQUALIFICATION

Not applicable.

1620.5 BASIS OF ACCEPTANCE

a. Submit for approval to the project Engineer and MRC a Type A certification (certified mill test report), as specified in **DIVISION 2600**, that governs the analysis of all heats delivered to the project for all wire utilized in the construction of the fence or fence components, regardless of application.

b. Submit for approval to the project Engineer and MRC a Type A certification (certified mill test report), as specified in **DIVISION 2600**, that governs the analysis of all heats delivered to the project for post and rail utilized in the construction of Chain Link Fence (Special). Provide certifications that show all information necessary to verify compliance with the dimensional, tensile and chemical requirements of this specification.

c. Receipt and approval of a Type D certification as specified in **DIVISION 2600** for all other fencing components.

d. Inspection and testing by field personnel of all fencing components for compliance with corrosion protection coating thickness, dimensional requirements, quality of workmanship and the delivery condition.