

ITEM 446

STRUCTURAL WELDING

446.1 Description. This item shall govern for the field welding of structural steel and reinforcing steel.

446.2 General. All welding operations, processes, equipment, materials, workmanship and inspection shall conform to the requirements of the latest Specifications for Welded Highway & Railway Bridges as published by the American Welding Society.

Certification of welders will be required. If no weld splices of main stress-carrying members are involved, the tests shall consist of the performance of a few sample welds by the welder and the fracture and visual inspection thereof by the Engineer. If splices of main stress-carrying members are involved, certification procedures shall conform to the latest Specifications for Welded Highway & Railway Bridges as published by the American Welding Society. The expense of certification tests shall be borne by the contractor.

446.3 Classifications of Electrodes permitted for Field Welds.

Table No. 1

Type of Steel	Main Members Groove & Fillet Welds		Secondary Members Groove & Fillet Welds	
Steel Piling	E6010	E60T-8	E60XX	E60T-8
A53 Pipe	E6011	E70S-1B	E70XX	E7XT-1
A500	E7016	ER70S-2	E70S-1B	E7XT-5
A501	E7018	ER70S-3	E70S-2	E7XT-6
Armor Joints		ER70S-6	E70S-3	E7XT-8
		ER70S-7	E70S-6	
			E70U-1	
Type of Steel	Main Members Groove & Fillet Welds		Secondary Members Groove & Fillet Welds	
A36	E7016	ER70S-2	E7016	ER70S-2
A441	E7018	ER70S-3	E7018	ER70S-3

A572, Grade 50	E7XT-1	ER70S-6	E7XT-1	ER70S-6
A588	E7XT-5	ER70S-7	E7XT-5	ER70S-7
A242 Deck Plate	E7XT-6		E7XT-6	
API Pipe	E7XT-8		E7XT-8	
Reinforc- ing Steel	E7016	E7018		

446.4 Reinforcing Steel. Provisions made herein for the welding of reinforcing steel are by the shielded metal-arc process. Other processes may be permitted with the specific approval of the Engineer.

Splicing of reinforcing steel, by welding, shall be done only at the locations shown on the plans.

Reinforcing steel to be welded shall be new billet steel conforming to ASTM A615 and shall also conform to the following chemical composition.

Maximum Carbon	0.40 Percent
Maximum Manganese	1.30 Percent

Low hydrogen electrodes, as specified in Table No. 1, will be required for all welding of reinforcing steel.

For all bars #8 and larger, butt splices will be required. For #7 bars and smaller, lap splices will be required.

Fillet welds in lap splices shall be a minimum of 4 inches in length and shall be welded on each side of the lap joint. For bars #5 and smaller, welding from one side of the lap will be permitted by the Engineer, when it is impractical to weld from both sides of the joint, but in this case, the weld shall be a minimum of 6 inches in length.

446.5 Measurement & Payment. No measurement or payment will be made under this item for the work prescribed, but shall be considered subsidiary to the various other bid items called for in the contract.

There are line code(s), description(s), and unit(s) for this item.

END OF ITEM 446