

with AWPA M4, Paragraph 1.41.

707.09 Measurement and Payment. The work and materials described and specified in this Section will not be measured for the purpose of making payment, as such work and materials are to be measured and paid for in accordance with the applicable sections setting forth the materials to receive the preservative treatment.

SECTION 708

HARDWARE

708.01 Description. This work shall consist of metal used in the construction of timber structures; and all bolts, lag screws, nuts, nails, washers and turnbuckles. Hardware for other type structures shall conform to the requirements of these specifications unless shown otherwise in the plans or as directed by the Engineer.

MATERIALS

708.02 Rolled Steel. Rods, plates, shapes and eye bars shall be of structural carbon steel or malleable iron if specified, conforming to the requirements of Section **709**.

708.03 Castings. Castings shall be cast steel or gray-iron as specified, conforming to the requirements of Section **709**.

708.04 Miscellaneous Items. Bolts, drift pins, dowels, lag screws, nails and machine bolts shall be low carbon steel conforming to the requirements of Section **709**. Washers shall be used on each end of all bolts, except only one washer is required for high strength bolts. Washers bearing on wood for bolts larger than 1/2 inch shall be cast ogee or approved malleable castings. The thickness of cast ogee washers shall be at least equal to the diameter of the bolt and

the thickness of malleable washers shall be at least one-half the diameter of the bolt. The diameter of cast ogee or malleable washers shall be four times the diameter of the bolt. Washers for 1/2 inch bolts or smaller and bearing on wood or metal shall be standard cut washers. Bolt heads and nuts may be square or hexagonal where the washers bear on wood and shall be hexagonal where the washers bear on metal. The plan length of bolts given is for estimating the quantity of hardware. The Contractor shall furnish bolts of the proper length. Nails shall be cut or round wire of standard form. Spikes shall be cut, wire or boat spikes as specified. All hardware shall be of standard quality and of the sizes and quantities specified.

Unless specified otherwise, hardware shall be galvanized. Galvanizing shall conform to the requirements of AASHTO M 111, AASHTO M 232, or AASHTO M 298 as applicable. Items described in AASHTO M 232, Class C may be coated in accordance with AASHTO M 298, Class 50. Items described in AASHTO M 232, Class D may be coated in accordance with AASHTO M 298, Class 40.

CONSTRUCTION REQUIREMENTS

708.05 General. No blocking between piles and sway braces will be allowed unless specifically shown on the plans; and any extra length of bolts or extra washers used will be at the Contractor's expense. The unit weights for galvanized hardware shall be assumed to be the same as non-galvanized hardware for purposes of payment.

708.06 Method of Measurement. When hardware is to be paid for at a unit price per pound, each item of hardware called for on the plans or authorized by the Engineer and remaining in the structure will be measured at the unit weight indicated on the plans and no allowance will be made for extra lengths or additional washers.

When so indicated on the plans or in the proposal, hardware shall be measured as a lump sum unit.

708.07 Basis of Payment. This material will be paid for either on the contract unit price per pound or lump sum price whichever is stated in the contract.

A. Per Pound Price. The weights as determined herein will be paid for at the contract unit price for hardware complete in place, which price and payment shall be full compensation for all materials, galvanizing, labor, equipment, painting, if required and all work incidental thereto.

B. Lump Sum Price. When a lump sum price is stated in the contract, that price and payment shall include all costs of furnishing, galvanizing, placing and painting, if required, of all hardware necessary to complete the structure in accordance with the plans and specifications or as directed by the Engineer.

Payment for this item includes all direct and indirect costs and expenses required to complete the work.

Payment will be made under:

Item No.	Pay Item	Pay Unit
7081000	Hardware	Lump Sum
7082000	Hardware	Pounds

SECTION 709

STRUCTURAL STEEL

709.01 Description. This work shall consist of furnishing, fabricating and erecting steel structures as required by the plans and the special provisions. It shall also include incidental metal work on other structures not otherwise provided for in these specifications.