

**ITEM 606. 4775--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4776--10 M - ANCHORAGE UNITS FOR STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4777--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS CONNECTION TO WALLS**

**DESCRIPTION**

The Contractor shall furnish and install steel-backed timber guide rail , anchorage units, and connections to walls at the locations shown on the plans and where directed by the Engineer.

**MATERIALS**

General.

1. *Steel Rails and Hardware.* Steel rails, steel back-up plates, splice plates, and all accessory components and hardware shall be fabricated as shown on the plans. Bolt holes, as necessary, may be enlarged or slotted to permit expansion and contraction and to facilitate erection. The steel rails and steel plates shall be straight and of uniform section.

The steel rails and splice plates shall meet the requirements of ASTM A36M and shall be galvanized. No punching, drilling, cutting or welding will be permitted after galvanizing.

Bolts, nuts, washers, and other miscellaneous fasteners and hardware shall conform to ASTM A325M and shall be galvanized.

Certified copies of the test results conducted by the manufacturer of the base metal for the physical and chemical requirements shall be furnished for all steel in the manner and form requested by the Department.

2. *Timber Rail, Block-outs, and Posts.* The timber rail, block-outs, and posts shall conform to AASHTO M168. The timber elements shall be fabricated from dry, well seasoned, and dressed rough sawn Douglas Fir, Southern Pine, or other species having a stress grade of at least 10 MPa. Treat the rail and block-out elements with either Chromated Copper Arsenate Type C (CCA-C) or Ammoniacal Copper Zinc Arsenate (ACZA) in accordance with American Wood Protection Association (AWPA) Category 4A (UC4A). Minimum net retention shall be as required for material supplied. A timber post that has a through check, shake, or end split in the same plane as, or a plane parallel to the bolt hole and extending from the top of the post to within 75 mm of the bolt hole will be rejected.

**ITEM 606. 4775--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4776--10 M - ANCHORAGE UNITS FOR STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4777--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS CONNECTION TO WALLS**

3. *Concrete.* Cast in place concrete shall meet the requirements specified for Class A Concrete in Section 501 "Portland Cement Concrete - General." Precast concrete units shall meet the requirements of Subsection 704-03 "Precast Concrete - General." The requirement for a Department approved, automated concrete batch plant does not apply.
4. *Welding.* Fabrication welding shall comply with the subsection "Welding" in the New York State Steel Construction Manual, except that radiographic inspection will not be required.
5. *Galvanizing.* Galvanizing shall conform to Subsection 719-01. Galvanizing shall be Type 1, except for hardware which shall be Type 2.

Anchorage Units. Back-up plates shall be galvanized and shall conform to ASTM A36M. Reinforcement for the anchor shall conform to Subsection 709-01, "Bar Reinforcement, Grade 420."

Connections to Walls. Galvanized steel pipes shall conform to ASTM A53. Structural steel tubes shall conform to ASTM A847.

*Basis of Acceptance.* The Contractor shall supply manufacturer certification that all materials are of the type, quality and treatment level specified.

**CONSTRUCTION DETAILS**

General. Guide rail shall be installed as indicated in the Contract Documents.

Wood posts shall be placed by excavating or by using vibratory driving or impact driving equipment approved by the Engineer. Post driving will be permitted only if alignment and grade tolerances are met and providing no damage is done to the posts during installation. Damaged or misaligned posts shall be removed and replaced by the Contractor as directed by the Engineer. To facilitate driving, the base of the wood posts may be tapered.

Post and anchor excavations shall be backfilled, and backfilled material compacted in accordance with Subsection 203-3.15 "Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables."

All posts shall be aligned to a tolerance of 6 mm for plumb and grade line.

**ITEM 606. 4775--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4776--10 M - ANCHORAGE UNITS FOR STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4777--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS CONNECTION TO WALLS**

The timber rails shall be field cut to produce a fit at the joints as indicated on the plans or working drawings. Treat field cuts with 2 coats of Waterborne Wood Preservative in accordance with AWWA Standards.

Upon completion of the installation of the guide rail components, the Contractor shall restore the area to its original state to the satisfaction of the Engineer.

Connection to Walls.

Holes for the thru bolts shall be carefully drilled and damage caused to the wall shall be repaired by the Contractor to the satisfaction of the Engineer at no cost to the State.

### **METHOD OF MEASUREMENT**

The guide rail will be measured by the number of meters, measured along the axis of the guide rail, furnished and installed.

Anchorage units will be measured by the number furnished and installed.

Connections to walls will be measured by the number furnished and installed.

### **BASIS OF PAYMENT**

The unit price bid for each item shall include the cost of all labor, materials, and equipment necessary to complete the work, including paint, concrete, reinforcement, excavation, backfill, and removal and replacement of damaged or misaligned posts.

Payment for Steel Backed Timber Guide Rail with Timber Posts and Block-Outs shall include the unit price bid and the measured quantity multiplied by the payment factor for post spacing listed in the following table:

**ITEM 606. 4775--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4776--10 M - ANCHORAGE UNITS FOR STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS**

**ITEM 606. 4777--10 M - STEEL-BACKED TIMBER GUIDE RAIL WITH TIMBER POSTS AND BLOCK-OUTS CONNECTION TO WALLS**

**PAYMENT FACTORS FOR STEEL BACKED TIMBER GUIDE RAIL**

<u>Post Spacing Center to Center</u>	<u>Payment Factor</u>
3048 mm	1.0
1524 mm	1.5
762 mm	2.0

Unless otherwise indicated on the plans, the cost of restoring any disturbed areas, including paving, sodding, seeding and mulching, shall be included in the unit price bid.

Progress payments will be made for linear meter items for Steel Backed Timber Guide Rail with Timber Posts and Block-Outs when the guide rail is erected in the position and manner indicated on the plans and in a manner approved by the Engineer, exclusive of restoration of disturbed areas and final alignment. Payment will be made, at the unit price bid, for 90% of the quantity erected. The balance of the quantity erected will be paid for upon proper repair of the disturbed areas and alignment of the guide rail to the specified tolerance.