A minimum tensile strength of 90,000 psi is acceptable. Shall have a minimum tensile strength of 100,000 psi. As an option, a 3/8'' wire strut with wire strut shown in the concrete insert as assembly detail is the minimum allowable size and shall be approved by the engineer.

The structural concrete insert assembly shall consist of the following components:

A. Ferrules shall be made from steel meeting the requirements of ASTM A307, grade 12L14 and shall conform to or exceed the mechanical requirements of ASTM A307. The use of this alternate may be used as an alternate for the 3/8'' x 11/2'' galvanized bolt and washer. They shall be galvanized. (At the contractor's option, stainless steel bolt and washer 1 3/8'' x 11/2'' bolt with washer. Bolt shall conform to the requirements of ASTM A307. Bolt shall have a minimum length of threads of 1 1/2''.

B. Ferrules shall be made from steel meeting the requirements of AASHTO M169, grade 12L14 and shall have N.C. threads.

C. Ferrule shall engage a 3/8'' x 1 1/2'' bolt with 2'' O.D. washer in place. The 3/8'' x 1 1/2'' bolt shall have a working load shear capacity of 4800 lbs. The 1 3/8'' structural concrete insert shall have a working load shear capacity of 4800 lbs. The cost of the standard clamp bars and cap screws used in the metal rail to end post connection shall be included in the unit contract price bid for linear feet of one or two bar metal rails.

D. Standard clamp bars. See Metal Rail Sheet 4.

E. 3/8'' pipe sleeves of required to be galvanized.

F. The metal rail to end post connection shall consist of the following components:

A. 3/8'' plates shall conform to ASTM A36 grade 12 and shall be galvanized after fabrication.

B. 3/8'' structural concrete insert shall have a working load shear capacity of 4800 lbs. The ferrules shall engage a 3/8'' x 1 1/2'' bolt with 2'' O.D. washer in place. The 3/8'' x 1 1/2'' bolt shall have N.C. threads.

C. Cap screws for rail attachment to angle shall conform to the requirements of ASTM F593 alloy 305 stainless steel. Cap screws to be centered in slots at 60°F. Cap screws for rail attachment to angle shall conform to the requirements of ASTM F593 alloy 305 stainless steel. Cap screws to be centered in slots at 60°F.

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