**SECTION A-A**

**TYPICAL SECTION THRU RAIL**

**SECTION B-B - RAIL SPLICE/EXPANSION BAR**

(Rail not shown for clarity)

- **3'-0" (Rail Splice/Expansion Bar)**
- **1'-6"**
- **2 - Stop Pins (Locate at center of Rail Splice/Expansion Bar)**
- **Insert Bar (2 required)**

**RAIL SPLICE/EXPANSION ASSEMBLY DETAIL**

- **1 1/2" (Min.) Expansion (See Notes)**
- **1/2" (Min.) Splice**
- **Insert Bar**

**VIEW D-D**

**RAIL END CAP DETAIL**

**CROSS REFERENCE:**

For Notes and Tapered End Transition Details, See Sheet 3.

*Use of either Type 1 or Type 2 Insert Bar is at the option of the Contractor.*

**INSERT BAR DETAIL (TYPE 1)**

**SECTION C-C**

**RAIL SPLICE/EXPANSION BAR ASSEMBLY**

- **Insert Bar (Type 1)**
- **Insert Bar (Type 2)**
- **2 1/2" X 5/8" X 1'-0" Flat Bar.**

**VIEW E-E**

**RAIL CLAMP BAR DETAIL**

- **Drill & tap hole to accept 5/16" Ø Stainless Steel Fasteners.**

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**RAIL CLAMP BAR DETAIL**

- **Drill & tap hole to accept 5/16" Ø Stainless Steel Fasteners.**

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**RAIL SPLICE/EXPANSION ASSEMBLY DETAIL**

- **1 1/2" (Min.) Expansion (See Notes)**
- **1/2" (Min.) Splice**
- **Insert Bar**

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**CROSS REFERENCE:**

For Notes and Tapered End Transition Details, See Sheet 3.
RAILING NOTES:

PAYMENT: Payment for the railing includes Rails, Posts, Rail Splice/Expansion Assemblies, Rail Clamp Bars, Rail End Caps, Anchor Bolts, Nuts, Resilient Pads, Screws and Washers and all incidental materials and labor required to complete the installation.

POST ASSEMBLY: Fabricated wrought aluminum: Post - ASTM B221, alloy 6061-T6, or alloy 6351-T5; Base Plate - ASTM B209, alloy 6061-T6.

WELDING: Welding of aluminum components shall be in accordance with ANSI and AWS D1.2 "Structures Welding Code - Aluminum".

RAIL AND RAIL SPlice/EXPANSION ASSEMBLIES: Aluminum: ASTM B221, alloy 6061-T6, or alloy 6351-T5. Stop Pins shall be press-fit Aluminum or Stainless Steel pins or tubes, unless otherwise approved by the Engineer.

RAIL CLAMP BAR: Aluminum: ASTM B221, alloy 6061-T6, or alloy 6351-T5.

STAINLESS STEEL FASTENERS: 1/8" Ø Hex Cap Screws and Washers shall be ASTM F-593, alloy group 2 (316).

ANCHOR BOLTS: Anchor bolts shall be in accordance with ASTM A307 or ASTM A193, Grade B7. Anchor Bolts, Nuts, and Washers shall be hot-dip galvanized in accordance with Specification Section 962.

RAIL INSTALLATION: Set Rail Posts normal to Profile Grade longitudinally and vertical transversely. Post spacings that land on barrier or parapet obstacles such as armor expansion plates etc. shall be adjusted to clear obstacles by 8" without exceeding maximum post spacing. Post shall be uniformly spaced with reasonable consistency. Set Posts on 3/4" thick resilient or neoprene pads in accordance with Specification Section 932. The pad dimension shall be the same as the post base plate. Provide rail expansion assembly in panels between posts on either side of Bridge Expansion Joints. Rail expansion assembly is similar to the rail splice assembly with increased space at assembly to allow for movement equal to 1.5 times the bridge joint opening or 1" greater than the expected joint movement. Take care to ensure rails are set with the proper openings. Remove any burrs or sharp edges on rails and posts to prevent injury.

RAIL CLAMP ASSEMBLIES: Rails shall be continuous over a minimum of 3 posts, except that lengths less than 12' need only be continuous over 2 posts. Space splices at 40'-0" maximum on centers. Splice all rails in any railing section about the same center line.

RESILIENT AND NEOPRENE PADS: Resilient and Neoprene Pads shall be in accordance with the Specifications except that testing of the finished pads is not required. Neoprene pads shall be duraometer hardness 60 or 70.

Sheet DIRECTIONS: Submit typical details for straight alignments and complete details for end terminations or curved alignments with radii < 40', including post and rail splice/extension assembly locations of the proposed railing for the Engineer's approval prior to fabrication.

CROSS REFERENCE: For Post Details see Sheet 1. For Rail Details see Sheet 2.