RAILS, PICKETS & POSTS:
Pipe rails and pickets shall be in accordance with ASTM F463 Grade B for standard weight pipes (Schedule 40) or ASTM 436 for bare. Structural Steel Pipe posts shall be in accordance with ASTM A500 Grade B, C, or D, or ASTM A 540. Posts and End Rails shall be fabricated and installed plumb, ± 1° tolerance when measured at the foundation. Pickets shall be fabricated parallel to the posts. Centers and changes in tangential longitudinal alignment, shall be made continuous with a 90° bend radius. For changes in tangential longitudinal alignment greater than 45°, posts shall be positioned at a maximum distance of 2°C each side of the prior post. Curved post brackets must be located at the curved spandrel. For curved and straight alignment the top and bottom rails and handrails shall be shop bent to match the alignment radius.

RAILING MEMBER DIMENSIONS TABLE

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>DESIGNATION</th>
<th>OUTSIDE DIMENSION</th>
<th>WALL THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posts</td>
<td>2&quot; x 4&quot; Rectangular Tube</td>
<td>2.00&quot; x 4.00&quot;</td>
<td>0.188&quot;</td>
</tr>
<tr>
<td>Rails</td>
<td>2&quot; NPS (Sch. 40)</td>
<td>2.375&quot;</td>
<td>0.154&quot;</td>
</tr>
<tr>
<td>Roll Joint/splice sleeves</td>
<td>2&quot; NPS (Sch. 40)</td>
<td>2.375&quot;</td>
<td>0.154&quot;</td>
</tr>
<tr>
<td>Handrail Joint Sleeves</td>
<td>2&quot; NPS (Sch. 40)</td>
<td>2.375&quot;</td>
<td>0.154&quot;</td>
</tr>
<tr>
<td>Handrailsupports</td>
<td>1&quot; Round Bar</td>
<td>1.000&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>Pickets</td>
<td>2&quot; x 4&quot; Rectangular Tube</td>
<td>2.00&quot; x 4.00&quot;</td>
<td>0.600&quot;</td>
</tr>
<tr>
<td>Base Plates &amp; Post Caps Base Plates and Post Cap plates shall be in accordance with ASTM A36 or ASTM A509 Grade 36.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Slope rails shall be alumimum in accordance with ASTM 1929, Alloy 6061, or 6063. Slope rails shall be used for foundation height adjustments greater than 5/16" and localized irregularities greater than 5/16". Field trim rails when necessary to match the contours of the foundation. Deviated slope rails may be used in lieu of minimal flat slope rails shown. Staked slope rails must be bonded together with No. 4 T-304 stainless steel binding material limited to a maximum total thickness of 0.1/2", unless longer anchor bolts are provided for the exceed thread length.

2. Anchor bolt pads shall be galvanized after fabrication in accordance with Section 962 of the Specifications. Anchor bolts and washers shall be hot-dip galvanized in accordance with Section 962 of the Specifications.

ANCOR BOLTS:
Anchor bolts shall be in accordance with ASTM F1554 Grade 36. Headless anchor bolts for Adhesive Anchors shall be threaded full length. Cutoff of reinforcing steels permitted for drilled hole installation. Expansion Anchors shall be permitted. Anchor bolts shall not be permitted. Anchor bolts shall not be permitted with drilled holes. Two holes of the anchor bolt may be used in lieu of self-drilling nuts. Anchor bolts shall be in accordance with ASTM A563 or ASTM A 542. Post Washers shall be in accordance with ASTM F436 and Post Washers (not for slotted holes only) shall be in accordance with ASTM A36 or ASTM A509 Grade 36. After the nuts have been snug tightened, the anchor bolt threads shall be distorted to prevent accidental removal. The nuts threads and lock washers shall be coated with a galvanizing compound in accordance with the Specifications.

REINFORCE AND NEOPRENE RAILS:
Resistant and Neoprene pads shall be in accordance with Specification Section 932 except that locking of the finished pads shall not be required. Neoprene pads shall be galvanized hardness 60 to 70.

JOINTS:
All Keed joints are to be welded all around and ground smooth. Expansion joints shall be spaced a maximum of 50 to 75 feet. Field joints shall be similar to the expansion joint detail approved by the Engineer to facilitate hot-dip galvanizing and handling, but rolling must be continuous across a minimum of two posts. Use the Continuity Field splice (Detail E) to make the rolling continuous for unforeseen field adjustments. Alternate rails shall be made at the same time as the galing compound when field adjustment is required.

WELDING:
All welding shall be in accordance with the American Welding Society Structural Welding Code (Steel AWS D1.1, current edition). Weld metal shall be E60XX or E60XX. Nondestructive testing of welds is not required.

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All welding shall be in accordance with the American Welding Society Structural Welding Code (Steel AWS D1.1, current edition). Weld metal shall be E60XX or E60XX. Nondestructive testing of welds is not required.

2008 FDOT Design Standards

STEEL PEDESTRIAN/BICYCLE PICKET RAILING

Details:

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>SHEET NAME</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 of 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2008 FDOT Design Standards

STEEL PEDESTRIAN/BICYCLE PICKET RAILING

Details:
TYPICAL RAILING DETAILS & RAILINGS ON GRADES 0% TO 5%

ELEVATION
(Showing Outside Face of Railing)

See Plane for continuation or termination limits of railing

See Plane for continuation or termination limits of railing

See Plane for continuation or termination limits of railing

See Plane for continuation or termination limits of railing

ELEVATION
(Showing Inside Face of Railing)

RAMP REQUIREMENTS
For slopes greater than 5%
Max. ramp slope = 8.33%
Max. ramp cross-slope = 2.0%

LANDING REQUIREMENTS
Max. landing slope = 67
Max. landing cross-slope = 2X

RAILINGS ON GRADES STEEPER THAN 5% TO 8.33%
TYPICAL SECTION ON CONCRETE SIDEWALK (Case I)

2 - 7/8" Ø C.I.P. Max Head Anchor Bolts, or 2 - 7/8" Ø Headless Anchor Bolts set with Adhesive Bonding Material System, in accordance with Specification Sections 418 and 937. Self-Locking Max Nuts & Washers...

Shim Plates as required

DETAIL "A"
(Cast-In-Place Anchor Bolts shown, Adhesive Anchors similar)

TYPICAL SECTION ON RETAINING WALL (Case II)

4" Sidewalk with Thickened Edge

Slope 2½ Max. away from (drop-off)

4½" Min. Width at Top of Wall

Reinforced Concrete Structure

ANCHOR BOLT TABLE

<table>
<thead>
<tr>
<th>CASE</th>
<th>STRUCTURE TYPE</th>
<th>DIMENSIONS</th>
<th>ANCHOR LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Unreinforced Concrete</td>
<td>6&quot;</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>II</td>
<td>Reinforced Concrete</td>
<td>4&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>III</td>
<td>Gravity Wall, Rail No. 920</td>
<td>4½&quot;</td>
<td>3½&quot; @ top</td>
</tr>
<tr>
<td>III</td>
<td>Step Cheekwall</td>
<td>4½&quot;</td>
<td>4½&quot;</td>
</tr>
</tbody>
</table>

STEEL PEDESTRIAN/BICYCLE PICKET RAILING