

SECTION 05 52 13
PIPE AND TUBE RAILINGS

PART 1 – GENERAL

1.1 SUMMARY

- A. Provide mechanically connected aluminum handrails and railings as shown on the drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related Work:
 - 1. Documents affecting work under this section include, but are not limited to;
 - a. Section 01 00 00- General Conditions
 - b. Section 05 50 00- Metal Fabrications
 - c. Section 05 51 00- Metal Stairs
 - d. Section 05 52 00- Metal Railings
 - e. Section 09 90 00- Painting and Coating

1.2 SUBMITTALS

- A. Submit shop drawings, including:
 - 1. Manufacturer's specification and other data needed to prove compliance with the specified requirements.
 - 2. Fabrication, layout, installation, anchorage, and interface of the work of this section with the work of adjacent trades.
 - 3. Manufacturer's recommended installation procedures.

1.3 QUALITY ASSURANCE

- A. Comply with OSHA and local building codes.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with no less than ten years of experience.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to job site properly marked to identify the structure for which they are intended and at such intervals to ensure uninterrupted progress of the work. Marking shall correspond to markings indicated on the shop drawings.
- B. Pack all aluminum pipes in individual plastic sleeves to protect the finish.
- C. Store all members off the ground using pallets, platforms, or other supports.
- D. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structure.

Part 2 – PRODUCTS

2.1 MANUFACTURERS

- A. BMC Rails by Breuer Metal Craftsmen Inc.
phone: (920) 885-2828
email: info@bmcrails.com
website: <https://bmcrails.com/>

2.2 GENERAL REQUIREMENTS

- A. Design, fabricate, and engineer railing assemblies in accordance with the most stringent requirements of ASTM E 985 and applicable local codes.
- B. Design railing assembly, wall rails, and attachments to resist lateral force required by applicable code at any point without damage or permanent set.
- C. Mechanically fastened aluminum railing system with internal connectors.
 - 1. Mechanically fastened 1-1/2 Schedule 40 top and mid-rails and 1-1/2 Schedule 80 posts. Post spacing to be no more than 5'-0", top rail shall be smooth and not free of interrupted.
 - 2. All pipes coped accurately to provide hairline connections.
 - 3. Use an internal stainless steel connector with a stainless steel set screw.
 - 4. Provide expansion joints for rails at intervals of not more than 40 feet.
- D. Provide all railings with 4-inch high kickplate, maximum 1/4-inch clearance to walkway surface. Fabricated and finished kickplate from same material as the rails and shipped in stock lengths along with connectors.
- E. Use internal stainless steel base flange assemblies with stainless steel anchors or bolts for surface mounting posts.
- F. Use aluminum side mount bracket assembly with stainless steel anchors or bolts for side mounting posts.
- G. Grout posts 6-inches into concrete core drilled holes or sleeves with Styrofoam plug inserted into bottom of post, include pre-drilled weep hole.
- H. Mount stainless steel base flange to stringers with stainless steel bolts and hardware.
- I. Handrail: 1-1/2-inch extruded aluminum pipe. Provide where shown on drawings.
- J. Railings delivered in shop assembled units, properly identified for ease of installation.
- K. Hinged Swinging Gate
 - 1. Gate frame, hinges & gate stop. Fabricate components in conformance with OSHA minimum strength requirements of same design, material & workmanship

to that of the guardrail system in which they will be installed.

- L. Vertical Spindle Infill (Options A)
 1. 1/2-inch extruded aluminum pipe internally pressed between horizontal rails.
 2. Space not to allow no larger than a 4" sphere to pass through openings.
 3. Of same design, material, quality, and workmanship to that of the guardrail system in which they will be installed.

- L. Mesh Panel Infill (Option B)
 1. 2" x 2" x 0.25" aluminum lockcrimp weaved wire mesh.
 2. 1" x 1" x 1/2" 18GA aluminum formed channel frame, alloy 3003-H14.
 3. Mechanically connected to guardrail with drain holes in lower corners of frame.
 4. Space not to allow no larger than a 4" sphere to pass through openings.
 5. Of same design, material, quality, and workmanship to that of the guardrail system in which they will be installed.

2.3 MATERIALS

- A. Aluminum
 1. Extruded Bar and Shapes: ASTM B 221, alloy 6063-T6
 2. Extruded Pipe and Tube: ASTM B 429, alloy 6005-T5, T4
- B. Stainless Steel
 1. Tubing: ASTM A 554, grade as follows:
 - a. Alloy 304
 3. Plate: ASTM A 167, grade as follows:
 - a. Alloy 304

2.4 FASTENERS

- A. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railing to other types of construction indicated and capable of withstanding design loadings.
- B. Cast-in-Place and Post-Installed Anchors: Fabricated from corrosion resistant materials with capability to sustain, without failure, the loads determined by local code requirements.

2.5 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Premixed, factory packaged, nonstaining, noncorrosive, grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.6 ALUMINUM FINISHES

- A. Mill Anodized- Aluminum Association Specification M12-C22-A41, finish non specular as fabricated, chemical finish-medium matte, Architectural Class 1 clear 0.7 mil thick

anodic coating.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Posts:

1. Use a single, unspliced pipe for each post.
2. Do not locate anchor bolts less than 2-inch from concrete surface edges.
3. Materials shall be plumb, square, level and anchored securely.
4. Bituminous or epoxy paint shall be applied where aluminum is in contact with dissimilar surface.

B. Rails:

1. Use a continuous pipe length for top rail wherever possible.
2. For horizontal rails:
 - a. Set top rail 42-inches from centerline to adjacent walking surface.
 - b. Handrails and guardrails shall be constructed to prevent the through-passage of a sphere with the diameter of 4 inches or larger.
3. For stair railings and handrails:
 - a. Set handrail 36-inches, measured vertically, above the nosing of the centerline of the parallel top rail.
 - b. Set handrails with a minimum clear span of 1-1/2" between handrail and adjacent wall or surface.
 - c. Extend handrails at least 12 inches beyond the top riser and at least one tread depth horizontally beyond the bottom riser at the slope of the stair flight.

END OF SECTION