



200 Series-Two-Line Standard Picket

PART 1 General

1.1 SECTION INCLUDES

- A. 200 Railing Series with Georgian Top and Square Pickets

1.2 RELATED SECTIONS

- A. Section 05700 Ornamental Metal: Adjacent or adjoining handrails and railings fabricated from aluminum pipe and tube components.

1.3 REFERENCES

- A. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2004
- B. ASTM B 210- Standard Specification for Aluminum and Aluminum Alloy Drawn Seamless Tubes; 2004
- C. ASTM B 247- Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings; 2000
- D. ASTM 221-Standard Specification for Aluminum and Aluminum-alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2005.
- E. ASTM 429 – Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube; 2002.
- F. ASTM C 1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (non-shrink); 2002
- G. ASTM E 488- Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements; 1996
- H. AA 30- “Specifications for Aluminum Structures”.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Handrails and railings shall withstand structural loading as determined by allowable design working stresses of materials based on the following standards.

1. Aluminum: AA30

- B. Structural Performance: Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections:

1. Top Rail of Guards: Shall withstand the following loads:
 - a. concentrated load of 200 lb (0.89kN) with a safety factor of x2.5 for a total load of 500 lb applied at any point and in any direction.
 - b. uniform load of 50 lb-ft (0.07kN-m) with a safety factor of x2.5 for a total load of 125lb applied horizontally.
 - c. concentrated and uniform loads above need not be assumed to act concurrently.
 2. Handrails Not Serving as Top Rails: Shall withstand the following loads:
 - a. concentrated load of 50 lb (0.07kN) with a safety factor of x2.5 for a total load of 125lb applied at any point and in any direction
 - b. uniform load of 50 lb-ft. (0.07kN-m) with a safety factor of x2.5 for a total load of 125lb applied in any direction
 - c. concentrated and uniform loads above need not be assumed to act concurrently.
 3. Guards Infill Area: Shall withstand the following loads:
 - a. concentrated horizontal load of 200 lbf (0.89kN) applied to a 1 sq. ft. at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area. Loads need not be assumed to act concurrently, with loads on top rails in determining stress on guard.
- C. Thermal Movements: Design handrails and railings to allow for movements result from 120 degree F (49 C) changes in ambient and 180 degree F (82 C) surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.
- D. Corrosion Resistance: Separate incompatible materials to prevent galvanic corrosion.

1.5 SUBMITTALS

- A. Submit under provision of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings:
 1. Submit Manufacturer's approved shop drawings detailing the section and elevation views of each product to be installed.
 2. Coordinate with locations listed on Contract Drawings.
- D. Test and Evaluation Reports
 1. Submit test reports prepared by an independent testing laboratory indicating full compliance with specified requirements and ASTM E985.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150mm) square representing actual product, color, and patterns.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.

B. Installer Qualification: All products listed in this section should be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorizes having jurisdiction.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacture's absolute limits.

1.9 WARRANTY

A. At project closeout, provide to the Owner or Owners Representative, an executed copy of the manufacturer's standard document outlining the terms, conditions and limitations of their Lifetime Limited Warranty.

Products with (standard) Duracron Finish

- The Duracron aluminum railing finish is guaranteed from peeling, cracking, or blistering for ten (10) years from the original installation date, except if the railing is installed within two miles of a body of salt water. The finish on our railing located within two miles of a body of salt water, is warranted for a period of one (1) year.

Products with Kynar™ Finish

- The Kynar™ aluminum railing finish is guaranteed from peeling, cracking, or blistering for fifteen (15) years from the original installation date, except if the railing is installed within ½ a mile of a body of salt water. The finish on our railing located within ½ a mile of a body of salt water, is warranted for a period of three (3) years.

Products with KynarXL™ Finish

- The **KynarXL™** aluminum railing finish is guaranteed from peeling, cracking, or blistering for fifteen (15) years from the original installation date.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Atlantic Aluminum Products Incorporated, which is located at 12144 Sussex Highway; Greenwood, DE 19950; Toll Free: 801-601-1870, Telephone: (302) 349-9091, Fax: (302) 349-0138, Email: aap@atlanticaluminumproducts.com, Web: aaprailing.com.

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 Materials

A. Extrusion Alloy: Aluminum 6063-T5, 6063-T-6, 6061-T6, or 6005A-T61.

B. Screws and anchors: All screws and anchors are made of corrosion resistant material.

2.3 Ornamental Railing System

A. Top Rail-200 Railing Series (two or three line)

1. Top Rail Profile: 1-13/16 inches (46.037 mm) wide by 1 inch (25.4mm) high

B. Picket Selection-Standard Square Picket

1. Picket Dimension: 3/4 inch square (19.1 mm)

2. Picket Spacing: Picket spacing must disallow the passage of a 4 inch (101.6) sphere through the railing at any point

C. Post

1. Post Dimension: 2-1/2 inches square (63.5mm) square

D. Span

1. As noted on the Contract Drawings, not to exceed 72 inches (1828.8 mm)

E. Mounting Options

1. Surface Mount

2. Grout and Anchoring Cement or Core Drill

F. Guardrail Height

1. 42 inches (1067 mm) above finished surface

2.4 Colors and Finishes

A. Colors:

White: Duracron White UC -107616

Duranar White: UC-96818

Black: Duracron S600 L/G Black UC- 61204

Clay: UC 100603

B. Finishes:

1. Electrostatic Paint: Acrylic coating which conforms to specification outlined in AAMA 2603.

2. Kynar: Two part coat system (primer and paint). Conforms to specification outlined in AAMA 2605 to offset the corrosive effects of weathering and to protect color pigments from chalking and fading.

3. Kynar-XL: Three part coat system (primer, paint, XL). Conforms to specification outlined in AAMA 2605 to achieve the highest possible corrosion defense and protects color pigments from chalking and fading.

2.5 Infill

A. Vertical

1. Spacing is to disallow the passage of 4 inch (101.6 mm) sphere through the railing at any point.

2.6 Fasteners

A. Handrail Anchors: Select fasteners of type, grade and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.

B. Handrail and Railing Component Anchors: Use fasteners fabricated from same basic metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

1. Provide concealed fasteners for interconnecting railing components and for attaching them to together work, unless exposed fasteners are unavoidable or are standard fastening method for

2.7 Fabrication

A. Assemble handrails and railings in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

B. Form changes in direction of railing members as shown in the Contract Drawings.

C. Mechanical Connections: Fabricate handrails and railings by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

D. Brackets, Flanges, Fittings, and Anchors: Provide the manufacturer's standard wall brackets, flanges, miscellaneous fittings to connect the handrail and railing members to other construction.

E. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

- F. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- G. Cut, reinforce, drill and tap components as indicated on drawings to receive finish hardware, screws, and similar items.
- H. Close exposed ends of railing members with prefabricated end fittings.
- I. Provide mounted handrails walls returns at wall ends unless otherwise indicated. Close ends of returns, unless clearance between end railing and wall is ¼ inch (6mm) or less.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions
- B. Clean surfaces thoroughly with soap and water after installation is completed.

3.4 PROTECTION

- A. Protect installed products until completion of project
- B. Touch-up, repair or replace damaged products before Substantial Completion.