SPECIFICATIONS

SECTION 05720 – ALUMINUM HANDRAILS AND RAILINGS

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Aluminum handrails and railing.

1.2 REFERENCES

A. AAMA 2604 – Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.

B. ASTM B 221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Wire, Profiles, and Tubes; 1996.

C. ASTM E 935 - Standard Test Methods for Permanent Metal Railing Systems and Rails for Buildings.

D. ASTM E 985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.

E. ASTM A555 – Standard Specification for General Requirements for Stainless Steel Wire and Wire Rods.

F. ANSI – Z97.1 Safety Performance Specifications and Methods of Testing for Safety Glazing Materials Used in Buildings.

G. ADA - American with Disabilities Act Accessibility Guidelines.

H. SBCCI Standard Building Code; Southern Building Code Congress International, Inc.; 1997.

I. ICC International Building Codes; International Code Counsel; 2003.

1.3 SUBMITTALS

A. Submit under provisions 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: Drawings showing fabrication and installation of handrails including plans, elevations, sections, details of components, anchor details, and attachment to adjoining units of work.

D. Samples for Initial Railing Style and Color Selection.

1.4 QUALITY ASSURANCE

A. Railings Structural Requirements:
   1. Handrail Assemblies and Guards shall be able to resist a single concentrated load of 200 pounds applied in any direction at any point along the top.
   2. Infill area of guardrail system capable of withstanding a horizontal concentrated load of 200 pounds applied to one square foot at any point in the system.
   3. Handrail Assemblies and Guards shall be designed to resist a load of 50 plf applied in any direction at the top, and to transfer this load through the supports to the structure.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Materials to be delivered to the job site in good condition and adequately protected against damage as handrails are a finished product.

B. Store in a location and manner to avoid damage. Store handrails and components in a dry, ventilated area. Do not store around uncured concrete or harsh chemicals.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions within limits recommended by manufacturer for optimum results.

B. Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.

C. Coordinate railing fabrication schedule with construction progress to avoid delays.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: FSI Home Products Division; 2700 Alabama Hwy. 69 S, Cullman, AL 35057. Telephone: (256) 287-0445. Fax: (256) 287-0417. Email: info@railingworks.com. Web: http://www.railingworks.com/.

2.2 ALUMINUM RAILINGS

A. Pre-manufactured Railing Systems: RailingWorks Architectural Railing Systems.

B. Railing Styles:
   1. Picket Railings
   2. Cable Railings
   3. Glass Railings
   4. Decorative Railings
   5. Custom

C. Post and Mounting:
   1. 2 inch Post and Pedestal Base Surface Mount.
   2. 3 inch Post and Pedestal Base Surface Mount.
   3. 2 inch Post and Flat Base Surface Mount.
   4. 3 inch Post and Flat Base Surface Mount.
   5. 2 inch Post Fascia Mount.
   6. 3 inch Post Fascia Mount.
   7. 2 inch Core Mount.
   8. 3 inch Core Mount.

D. Materials:
   1. Pedestal Base: 2 inch square I.D., 4 inch square O.D.; Aluminum Casting; A356-T6 Alloy.
   2. Pedestal Base: 3 inch square I.D., 6 inch square O.D.; Aluminum Casting; A356-T6 Alloy.
   3. Flat Base: 4 inch square O.D.; Aluminum Plate; 6061-T6 Alloy.
   4. Flat Base: 6 inch square O.D.; Aluminum Plate; 6061-T6 Alloy.
   5. Posts: 2 inch square hollow extrusion; 6005-T5 Alloy.
   6. Posts: 3 inch square hollow extrusion; 6005-T5 Alloy.
   7. Pickets: 1 inch square hollow extrusion; 6063-T6 Alloy.
   8. Top Handrail: 2 1/2 inch wide, 1 5/8 inch tall two piece hollow extrusion; 6063-T6 Alloy.
   9. Bottom Rail: 1 13/16 inch wide, 1 1/2 inch tall two piece hollow extrusion; 6063-T6 Alloy.
   10. Glass Frame: 1 1/2 inch wide, 1 1/2 inch tall one piece hollow extrusion; 6005-T5 Alloy.
   11. Plugs and Post Caps: Aluminum Casting; A356-T6 Alloy.
   12. Glass: Tempered, 1/4 inch safety glass. ANSI – Z97.1; [Clear, Blue, Green, Grey, Bronze.]
   13. Cable: 316-grade Stainless Steel, 1x19 Strand.

E. Fasteners:
   1. 18-8 & 410-grade Stainless Steel and/or Aluminum Fasteners.

F. Connections: Railing manufacturer's standard mechanical fasteners and fittings, providing flush, smooth, rigid joints that can be removed and reconnected after installation.

G. Exposed Ends of Hollow Members: Closed with manufacturers prefabricated end fittings.

H. Anchors and Inserts: Stainless steel, capable of withstanding structural design loads specified.
   1. Cast-in-place anchors.
   2. Chemical anchors.
   3. Expansion anchors.

2.5 FINISH:

A. Electrostatically applied polyester powder coating fused to aluminum, complying with AAMA 2604 standards. Color to be selected by Architect from railing manufacturers range.
   1. Color: White.
   2. Color: Gray.
   3. Color: Almond.
   4. Color: Golden Clay.
   5. Color: Satin Black.
   6. Custom:

C. AAMA 2605 fluoropolymer finish. Color and specifications to be selected by Architect.

D. Anodized Finish. Color and specifications to be selected by Architect.

2.6 ACCESSORIES

A. Grout and Anchoring Cement: Non-shrink, non-metallic, non-corrosive, waterproof cement-based structural grout complying with ASTM C 1107.

2.7 FABRICATION

B. Fabricate handrails and railing systems to comply with manufacturer's printed requirements, project design requirements, details, dimensions, and finish but not less than the structural requirements to support required loads. Disassemble handrails and railing only as necessary for shipping and handling.

C. Clearly mark all components for onsite reassembly and installation.

D. Use connections that maintain structural capacity of joined members.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine system components, substrate, and conditions where railing systems are to be installed.

B. Notify Architect of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected.

C. Verify that reinforcement and anchoring devices are the correct type, have been located correctly, and have been installed properly.

3.2 PREPARATION

A. Coordinate drawings, diagrams, templates, instructions, and directions for installation of anchors, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors, which are to be embedded in concrete as masonry construction.
   1. Manufacturer shall supply all integral hardware for connection of handrail and railing to each other.
   2. Provide hardware needed to connect handrail or railing to adjoining structures.
   3. Coordinate delivery of such items to Project site.

3.3 INSTALLATION GENERAL

A. Install in accordance with manufacturers instructions and detailed drawings.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing handrails and railings. Set handrails and railings accurately in location, alignment, and elevation, measured from established lines and levels.
   1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means.
   2. Align handrails and railing so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

C. Fit exposed connections together to form tight, hairline joints.

D. Corrosion Protection: Coat concealed surfaces of aluminum alloys that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary to secure in-place construction. Separate dissimilar materials with bushings, grommets, or washers to prevent electrolytic corrosion.

3.4 CLEANING

A. Tap water containing mild soaps, detergents, or automotive cleaners should be used on painted aluminum surfaces.

3.5 PROTECTION

A. Protect installed products from damage by subsequent construction activities, until completion of Project.

B. Field repair of damaged product finishes with Manufactures painted color touch up only. Return items that cannot be repaired to the manufacturer for repair or replacements.

END OF SECTION 05720