SECTION 05 7300

ORNAMENTAL ALUMINUM RAILING

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PART 1 GENERAL

1.1 SECTION INCLUDES

A. Ornamental Aluminum Railing.

1.2 RELATED SECTIONS

A. Section 01 3515 – LEED Requirements

B. Section 03 3000 - Cast-In-Place Concrete: Placement of sleeves cast in concrete.

C. Section 04 2000 - Unit Masonry: Placement of anchors in masonry

D. Section 05 5000 - Metal Fabrications: Furnishing of sleeves cast in concrete.

E. Section 06 1000 – Rough Carpentry: Placement of blocking in wall construction.

F. Section 07 1300 – Sheet Waterproofing

G. Section 09 9116 – Gypsum Board Assemblies: Placement of backing plates in stud wall construction

1.3 REFERENCES

A. ANSI A1264.1 - Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems.

B. ASTM B 211 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, Wire.

C. ASTM B 247 - Standard Specification for Aluminum and Aluminum Die Forgings, Hand Forgings and rolled Ring Forgings.

D. ASTM B 429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.

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

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Comply with requirements of building authorities having jurisdiction in Project location.

B. Structural Performance: Engineer, fabricate, and install, guardrails, and railing systems to withstand, when tested per ASTM E 935, loadings required by applicable building and safety codes but not less than the following:

1. Design Loads: Design to the following requirements. Concentrated and uniform loading need not be applied simultaneously.

2. Uniform load: 50 pounds per foot (74.3 kg/m) applied at the top in any direction.

3. Concentrated load: 200 pounds (90.6 kg) applied at the top in any direction.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 3000 – Administrative Requirements, for submittal procedures

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Details of material and construction.

3. Storage and handling requirements and recommendations.

4. Installation methods and requirements.

C. Shop Drawings: Submit shop drawings for fabrication and installation of ornamental metalwork. Include plans, elevations and detail sections. Indicate materials, methods, finishes and types of joinery, fasteners, anchorages and accessory items.

D. Load Tests: Submit test results from ASTM E 935 conducted on the manufacturer’s supplied system indicating compliance with required structural loading.

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

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

G. Closeout Submittals: Provide manufacturer’s maintenance instructions that include recommendations for periodic cleaning and maintenance of all components.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 1-year documented experience producing systems specified in this section.

B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.

2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

3. Refinish mock-up area as required to produce acceptable work.

4. Accepted mock-ups shall be comparison standard for remaining Work

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened, properly labeled, original packaging until ready for installation.

B. Store components to avoid damage from moisture, abrasion, and other construction activities.

C. Keep handling to a minimum. Exercise caution to avoid damage to factory applied finishes.

1.8 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.9 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 manufacturer's absolute limits.

B. Field Measurements: Take measurements of actual dimensions where necessary for fit without gaps. Indicate measurements on shop drawings.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Superior Aluminum Products, Inc.; 555 E. Main St., P. O. Box 430, Russia, OH 45363. Phone: 937-526-4065. Fax: 937-526-3904. Email: info@superioraluminum.com. Web: www.superioraluminum.com.

1. Product: Series 7V Privacy Fence

B. Substitutions: Not permitted.

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

2.2 ORNAMENTAL ALUMINUM RAILINGS

A. Guard Rail Series 7V Aluminum Privacy Fence: Series 7V railings shall contain specialized post and pickets built to accept privacy panels. Top and bottom rails shall enter posts via machined openings. Pickets shall be 1-1/2 (3.81 cm) inch x 3/4 inch (1.91 cm) on 4-1/2 inch (11.43 cm) maximum centers, shall run between the top and bottom rail, and shall contain specialized openings for privacy panels. Picket and post fasteners shall be concealed.

1. Guard Rail Posts:

    a. Provide 4-inch (10.16 cm) square posts

2. Top Rail:

    a. Size - 4 inch (10.16 cm) wide by 2 inch (5.08 cm) high. Provide screw cover in matching finish to conceal post screws on top rail assemblies if applicable

3. Bottom Rail:

    a. Size – ¾ inch (1.91 cm) wide by 1-5/8 inch (4.13 cm) high

4. Receiver Pickets:

    a. 1-1/2 inch (3.81 cm) by ¾ inch (1.905 cm) with specialized opening to receive privacy panel

5. Privacy Panel

    a. 4-1/4-inch (10.795 cm) x .007-inch (.0178 cm) panel to be attached via receiver pickets’

6. Height:

    a. As indicated on the Drawings

7. Base: Size to fit the posts specified

    a. Heavy-Duty Surface Mount Base

    b. Cover Flange for Embedded Posts

    c. Side-Mount Corner Base

    d. Side-Mount Base

    e. As indicated on the Drawings.

2.3 Gates

A. Provide swinging gates of type and size indicated on the Drawings. Equip gates with manufacturer's standard as required for complete functional operation.

1. Construction:

a. Frame: Welded frame fabricated from post, top rail and bottom rail material.

b. Infill: Match the railing design and configuration.

2. Size: As shown on the drawings

B. Hardware:

1. Hinges: Size and type as determined by manufacturer.

a. Minimum of two hinges per leaf

2. Latch

a. Lock Latch

b. Magna Latch

2.4 MATERIALS

A. Rail, Post and Pickets: Aluminum extrusions; alloy and temper 6063-T4 or 6063-T6 or 6005A-T61 for rail and posts, and 6063-T5 for rectangular pickets.

1. Tube: ASTM B 211.

B. Base Flanges, Anchors, and railing accessories: ASTM B 247.

1. Bases cast from manufacturer's standard A-356-T6, 535, or 713 aluminum alloys or solid extruded 6063 aluminum alloy stock.

2. Base flanges and railing accessories cast from manufacturer's standard 319, A-356, A-356-T6, 535, or 713 aluminum alloys.

3. Anchorages: Provide concrete anchorage for fastening and complying with applicable Federal standards. All fasteners used in the system shall be aluminum or stainless steel.

C. Fasteners: Provide concrete anchorage for fastening and complying with applicable Federal standards. All fasteners used in the system shall be aluminum or stainless steel.

D. Grout: Non-shrink Portland cement-based hydraulic grout, mixed and applied in accordance with manufacturer's instructions; gypsum-based material is not acceptable. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and recommended by manufacturer for exterior use.

2.5 FINISH

A. Standard Architectural Coating (AAMA 2603):

1. White

2. Black

3. Dark Bronze

2.6 FABRICATION

A. Tolerances: Verify dimensions on site prior to shop fabrication for proper connection to building structure or substrate.

B. Components or railing sections shall be fabricated to exact measurements specified through Drawings and field dimensions.

C. Railing sections shall be fabricated at the manufacturing facility in largest practical site delivery.

D. Railings angled horizontally, machine castings to proper angle.

E. Posts grouted in concrete to have one nominal 1/4 inch (6.0 mm) nominal diameter weep hole, 1/2 inch (12.0 mm) nominal above post collar, in the plane of the rail

F. Provide components required for anchorage of framing. Fabricate anchors and related components of material and finish as required, or as specifically noted.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared. Fully review the supporting structure and substrate to verify a structurally sound base for anchoring railing system.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Coordinate railing installation with installation of waterproof membrane or coating Specified in Section 07 1300 – Sheet Waterproofing.

C. Ensure that adjacent surfaces, structures, and finishes are protected from damage by construction activities of this section.

D. Use wood blocks and padding to prevent damage to railing members and fittings during erection.

E. 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. Keep perimeter lines straight, plumb, and level.

C. Provide grounds, clips, backing materials, adhesives, brackets, anchors, and accessories necessary for a complete installation.

D. Expansion Bolt Mounting: Anchor through base plates to concrete substrate.

E. Sleeve Mounting:

1. Arrange for casting of sleeves or core drill concrete to provide holes for railing uprights.

2. After setting, fill holes with hydraulic grout; brace members until grout is cured.

F. Connect railing components in accordance with manufacturer’s instructions applicable to the specified system.

G. Tighten all fasteners so that completed railing is rigid and free of play at joints and component attachments.

H. Gates:

1. Install gates and adjust hardware for smooth operation.

2. After installation, test gate. Open and close a minimum of five times. Correct any deficiencies and adjust.

3.4 ERECTION TOLERANCES

A. Install plumb and level, securely fastened, with vertical members plumb.

1. Maximum variation from plumb: 1/4 inch (6.0 mm).

2. Maximum misalignment from true position: 1/4 inch (6.0 mm).

3. Maximum misalignment between adjacent separated members: 1/8 inch (3.0 mm).

3.5 CLEANING

A. Remove dust or other foreign matter from component surfaces; clean finishes in accordance with AAMA 609 and AAMA 610-02.

3.6 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION