

SECTION 05520

HANDRAILS AND RAILINGS

XSPLATFORMS – GUARDRAIL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Non-penetrating guardrail systems, including uprights, tube hand and knee rails, corner sections and counterweights.
- B. Free-standing guardrail system for:
 - 1. Roof Railings
 - 2. Industrial Safety
 - 3. Loading Dock Safety
 - 4. Construction Safety
 - 5. Skylight Safety
 - 6. Roof Hatches

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications.
- B. Section 07500 - Membrane Roofing.
- C. Section 07700 - Roof Specialties and Accessories.
- D. Section 07724 - Roof Hatches.
- E. Section 11240 - Facility Fall Protection.

1.3 REFERENCES

- A. Occupational Safety and Health Administration (OSHA):
 - 1. 29 CFR 1910.23 - Guarding floor and wall openings and holes.
 - 2. 29 CFR 1926.500 - Scope, Application and Definitions Applicable to this Subpart.
 - 3. 29 CFR 1926.501 - Duty to Have Fall Protection.
 - 4. 29 CFR 1926.502 - Fall Protection Systems Criteria and Practices.
 - 5. 29 CFR 1926.503 - Training Requirements.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum of 15 years of experience manufacturing portable railing (guardrail) systems.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets for products and assemblies specified.
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Cleaning methods.
- C. Shop Drawings:
 - 1. Indicate profiles, sizes, connections, size and type of fasteners, accessories.
 - 2. Show location of rails and guardrails including plans, details of components and anchor details.
 - 3. Field Verified Measurements: Verify dimensions indicated on Drawings.
- D. Verification Samples: For each finish specified, two samples representing actual colors specified.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.
- B. Store materials in manufacturer's original sealed, labeled packaging until ready for installation and in accordance with manufacturer's instructions. Protect finishes on rails and uprights from damage.

1.7 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 recommended limits.
- B. Field Measurements: Where horizontal rails and uprights are indicated to fit to other construction, check actual dimensions or other construction by accurate field measurements prior to ordering and installation; show recorded measurements on final Shop Drawings.

1.8 SEQUENCING AND SCHEDULING

- A. Coordinate fabrication and delivery schedule of handrails with construction progress and sequence to avoid delay of railing installation.
 - 1. Where field measurements cannot be made without delaying the system fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products to not delay fabrication, delivery and installation.

1.9 WARRANTY

- A. Warranty: Provide manufacturer's standard 1 year warranty against defects in materials and manufacturing.
- B. The XSPatforms' XSGuardrail system shall be installed under the direction of manufacturer's authorized trained personnel and under the supervision of a Qualified Person.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturer: XSPlatforms BV; P.O. Box 510, 4200 AM, Gorinchem, The Netherlands, Tel. 0031 183 569111, info@xsplatforms.com, www.xsplatforms.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 DESIGN REQUIREMENTS

- A. Structural Performance: Comply with requirements of applicable local, state, and federal codes.
- B. Structural performance of handrails and supports:
 - 1. Capable of withstanding a concentrated load of 200 pounds (90.6 kg), applied to the top rail at any point and in any direction.
 - 2. Capable of withstanding a uniform load of 50 pounds per linear foot (74.3 kg/m) applied to the top rail horizontally with a simultaneous load of 100 pounds per linear foot (148.6 kg/m) applied vertically downward.
 - 3. Design need not provide for both concentrated and uniform loads to be applied concurrently.
- C. Structural performance of railing infill:
 - 1. Capable of withstanding a horizontal concentrated load of 200 pounds (90.6 kg), applied to one foot (305 mm) square area at any point on the infill.
 - 2. Infill includes panels, intermediate rails, posts and other elements.
 - 3. Design need not provide for infill loads to be applied concurrently with top rail loading.
 - 4. Horizontal members not to exceed 12 inch (305 mm) spacing over lens area of skylight.

2.3 ROOF EDGE PROTECTION

- A. Roof Edge Protection System: Non-Penetrating Guardrail System including uprights, horizontal handrails, counterweights and accessories as manufactured by XSPlatforms.
 - 1. System Design: Permanent safety rail system with 43 inches (1100 mm) maximum height; to provide a guardrail system on the roof to withstand a minimum load of 200 lbs (90.6 kg) at any point in an outward or downward direction per OSHA Regulation 29 CFR 1926.502(b).
- B. System Components:
 - 1. Materials: Natural finish aluminum uprights and horizontal rails with stainless steel fasteners.
 - 2. Materials: Coated concrete counterweights of 50.7 lbs (23 kg)
 - 3. Tube Diameter: 1 ⁹/₁₆ inches (40 mm).
 - 4. Tube lengths: 10 or 20 feet (3 or 6 meters).
 - 5. Mounting: Free-standing rail base assemblies.
 - 6. Toe boards and toe board brackets.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Inspect and prepare substrates and nailers using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions. Verify that nailers and other structural components of the building are securely fastened and capable of withstanding loads applied by the guardrail system.
- B. Do not proceed with installation until substrates and nailers have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.
- C. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
- D. Clean surfaces thoroughly prior to installation.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Before installation, inspect all parts to insure no damaged parts are used.
- C. Place (roof) beams with uprights in position, with a maximum spacing between 5 and 8 feet (1.50 and 2.44 meters).
- D. Install the hand and knee rails.
- E. Where there is a danger of falling materials onto someone below insert a toe board into the toe board bracket on the upright and secure with the supplied screws.

3.3 PROTECTION

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

END OF SECTION