

SECTION 02849

RAMPS

PART GENERAL

SECTION INCLUDES

Modular aluminum ramps.

REFERENCES

Aluminum Association (AA) - Specifications for Aluminum Structures.

ANSI/AWS D1.2 - Structural Welding Code - Aluminum.

ASTM A 555/A 555M - Standard Specification for General Requirements for Stainless Steel Wire and Wire Rods.

ASTM B 221 - Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.

ASTM B 221M - Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric).

SYSTEM DESCRIPTION

Design Requirements:

Design ramp, landing, and railing systems of interchangeable modular components for site assembly, with concealed connection devices; configurations are indicated on drawings.

Design ramp, landing, and railing systems to comply with requirements of the following:

Americans with Disabilities Act (ADA).

Americans with Disabilities Act Accessibility Guidelines (ADAAG); Federal Register.

Southern Building Code Congress International, Inc. (SBCCI).

Building Officials & Code Administrators International, Inc. (BOCA).

Uniform Building Code (UBC); International Conference of Building Officials (ICBO).

National Fire Protection Association (NFPA) 101 - Life Safety Code.

State Requirements for Educational Facilities (S.R.E.F.); Florida Schools and Universities.

California Accessibility Regulations, Book 2,
Title 24 - Part 2, State Building Code.
Council of American Building Officials/American
Standards Institute (CABO/ANSI).
Local authorities having jurisdiction over the
project.
AA reference.
Performance Requirements specified in this
section.

Performance Requirements:

Ramp and landing sections: Minimum distributed live load capacity of 100 pounds per square foot (488 kg per sq m), and support concentrated vertical load of 300 pounds (136 kg) uniformly distributed over 1 square foot (0.092 sq m) of area; distributed loads and concentrated loads not to be applied simultaneously.

Handrails located 34 inches (864 mm) to 38 inches (965 mm) above, and parallel to, walking surface; 1-1/2 inches (38 mm) grasping rail:

Support distributed load of 50 pounds per linear foot (74.3 kg/m), applied in any direction.

Support concentrated horizontal load of 200 pounds (90.6 kg), uniformly distributed over 1 square foot (0.092 sq m) of area, applied at any point in system.

Distributed loads and concentrated loads not to be applied simultaneously.

Guardrails located 42 inches (1066 mm) above, and parallel to, walking surface:

Support distributed load of 50 pounds per linear foot (74.3 kg/m), applied horizontally at required guardrail height, and simultaneous distributed load of 100 pounds per linear foot (148.7 kg/m), applied vertically downward at top of guardrail.

Support concentrated horizontal load of 200 pounds (90.6 kg), uniformly distributed over 1 square foot (0.092 sq m) of area, applied at any point in system.

Distributed loads and concentrated loads not to be applied simultaneously.

Guardrail barrier:

Prohibit 4-inch (101 mm) sphere from passing through any opening.

Support concentrated horizontal load of 200 pounds (90.6 kg), uniformly distributed over 1 square foot (0.092 sq m) of area, applied at any

point in system.

SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer's descriptive literature for ramp, landing, and railing systems; identify materials and finishes.

Shop Drawings:

Plans: Indicate ramp configurations; include dimensions.

Elevations: Indicate railing configurations; include grade, landing, railing and threshold heights.

Details: Indicate connecting and anchoring details of components.

Samples: Two samples, minimum size 6 square inches (0.387 sq m), representing each finish specified.

Quality Assurance Submittals:

Design Data: Shop drawings, catalog cuts, and brochures for typical pre-engineered ramp, landing, and railing system.

Manufacturer's Instructions: Printed installation instructions for ramp and railing systems; include requirements for storing systems until installation.

Closeout Submittals:

Operation and Maintenance Data: Manufacturer's instructions for maintenance of ramp system components and finishes, and for storing and relocating ramp system.

Warranty Documents: Issued and executed by manufacturer.

DELIVERY, STORAGE, AND HANDLING

Store products of this section in manufacturer's unopened packaging until installation.

Maintain storage conditions for products of this section in accordance with manufacturer's instructions until installation.

PROJECT/SITE CONDITIONS

Field Measurements: When construction schedule permits, obtain field measurements of actual project conditions; using shop drawings prepared by ramp manufacturer, note discrepancies on submitted shop drawings.

SEQUENCING

Do not install ramp systems until construction activities which would affect, or be affected, by installation of ramp systems is complete; such construction activities include, but are not limited to:

- Final grading.
- Paving.
- Sodding/seeding.
- Exterior finishes.
- Doors and windows.

WARRANTY

Manufacturer's Warranty: Furnish manufacturer's 3-year warranty against defects in products.

PART PRODUCTS

MANUFACTURERS

Acceptable Manufacturer: REDD Team Manufacturing, Inc.; 6587 State Road 21 North, P.O. Box 658, Keystone Heights FL 32656; ASD. Tel. (800) 648-3696 or (352) 473-7246, Fax (352) 473-0219.

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

Substitutions: Not permitted.

COMPONENTS

Ramp Sections:

Framing: Aluminum extruded shapes conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper.

Walking surface: 1-1/2 inches (38 mm) deep by 6 inches (152 mm) wide aluminum deck, with triple I-beam understructure; self-mating profiles to form continuous walking surface, without gaps.

Curb: Aluminum extruded shape conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper; continuous along each side of walking surface, minimum 3 inches

(76 mm) high.
Walkway width: _____ inches (___ mm).
Walkway widths: Indicated on drawings.

Landings:

Framing: Aluminum extruded shapes conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper.
Walking surface: 1-1/2 inches (38 mm) deep by 6 inches (152 mm) wide aluminum deck, with triple I-beam understructure; self-mating profiles to form continuous walking surface, without gaps.
Curb: Aluminum extruded shape conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper; continuous along each side of walking surface, minimum 3 inches (76 mm) high.
Landing size: 64 inches by 64 inches (1625 mm by 1625 mm).
Landing size: _____ inches by _____ inches (___ mm by ___ mm).
Landing sizes: Indicated on drawings.

Leg Assemblies:

Legs: Aluminum extruded shapes conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper; manufacturer's standard units in incremental lengths for project conditions.
Leveling/support pads: Aluminum extruded shapes conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper; 6 inches (152 mm) by 10 inches (254 mm) by 1/4 inch (6.3 mm) flat bar.
Ramp/landing connectors: Aluminum extruded shapes conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper; with swivel to adjust legs plumb, and provision for leg length adjustment for height and slope of grade.

Guardrails located 42 inches (1066 mm) above, and parallel to, walking surface:

Vertical posts and 42-inch high guardrail: Aluminum extruded shapes conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, rectangular tube 1-1/2 inches (38 mm) by 2 inches (51 mm) by 1/8 (3 mm) inch wall thickness with 1/8 (3 mm) inch radiused edges.
Handrails: Aluminum extruded tube conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 1-1/2 inches (38 mm) outside diameter; top of handrail located 34 inches (863 mm) above, and parallel to, walking surface.
Grasping rails: Aluminum extruded tube conforming to

ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 1-1/4 inches (32 mm) outside diameter; top of handrail located 26 inches (660 mm) above, and parallel to, walking surface.

Vertical barrier balusters: Aluminum extruded square tube conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 3/4 inches (19 mm) square; spaced at 4 inches (101 mm) on centers.

Guardrail barrier mesh: 2 inch (50 mm) galvanized or vinyl coated fencing material.

Horizontal Two-Line Handrails:

Top grasping rails: Aluminum extruded tube conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 1-1/2 inches (38 mm) outside diameter; top of handrail located 38 inches (965 mm) above, and parallel to, walking surface.

Lower rails: Aluminum extruded tube conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 1-1/4 inches (32 mm) outside diameter; top of rail located 26 inches (660 mm) above, and parallel to, walking surface.

Horizontal Two-Line Handrails with Vertical Barrier Baluster:

Top grasping rails: Aluminum extruded tube conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 1-1/2 inches (38 mm) outside diameter; top of handrail located 38 inches (965 mm) above, and parallel to, walking surface.

Lower rails: Aluminum extruded tube conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 1-1/4 inches (32 mm) outside diameter; top of rail located 26 inches (660 mm) above, and parallel to, walking surface.

Vertical barrier balusters: Aluminum extruded square tube conforming to ASTM B 221/ASTM B 221M, alloy 6063, T6 temper, 3/4 inches (19 mm) square; spaced at 4 inches (101 mm) on centers.

Fasteners: Machined from stainless steel conforming to ASTM A 555/A 555M, type 18-8, grade 304.

FABRICATION

Weld aluminum components by gas metal arc-welding (GMAW) process in accordance with ANSI/AWS D1.2.

Deburr exposed surfaces to smooth finish, free of sharp or jagged edges.

Fabricate railings to form smooth continuous gripping surface along ramps and landings.

FINISHES

Ramp and landing deck walking surfaces: Extruded slip-resistant surface having minimum coefficient of friction of 0.5.

All other sight-exposed surfaces: Mill finish.

All other sight-exposed surfaces: Clear satin anodized finish conforming to AA M10 C22 A31.

All other sight-exposed surfaces: Dark bronze anodized finish conforming to AA M10 C22 A34.

All other sight-exposed surfaces: _____ finish conforming to _____.

PART EXECUTION

EXAMINATION

Verify that grade and threshold elevations are within adjustment tolerances of ramp system.

INSTALLATION

Install ramp system in accordance with shop drawings and manufacturer's instructions.

Ensure that ramps are at indicated slopes, that landings are level, and that legs are plumb.

PROTECTION

Do not allow construction traffic to use installed ramp systems.

Protect installed ramp systems from damage by subsequent construction activities until Substantial Completion.

Repair damage to finishes or operation of ramp systems caused by subsequent construction in accordance with manufacturer's recommendations; replace components which

cannot be repaired to Architect's acceptance.

END OF SECTION