



## **SECTION 05511**

### **ALUMINUM LADDERS**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Vertical ladders.
- B. Ship's ladders.
- C. Utility line bridges.

##### **1.2 SUBMITTALS**

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets indicating materials of construction.
- C. Shop Drawings: Drawings prepared for this project, showing relationship of ladders to other construction and methods of anchorage.

#### **PART 2 PRODUCTS**

##### **2.1 MANUFACTURERS**

- A. Acceptable Manufacturer: Royalite Manufacturing, Inc; 1055 Terminal Way, San Carlos, CA 94070. ASD. Tel: (650) 637-1440 or (800) 875-9548. Fax: (650) 637-9770. [www.royalite-mfg.com](http://www.royalite-mfg.com).
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

##### **2.2 COMPONENTS**

- A. Ladders: Provide assembled ladders that comply with OSHA and local building codes, with all edges rounded, clean, smooth, and burr free; dimensions as indicated on drawings.

- B. Ladder Treads: Extruded aluminum, 6063-T5 alloy, with self-cleaning serrated top surface and rounded front and back edges; fastened to handrails with concealed stainless steel screws; capable of withstanding 1200 pounds (3179 kg) load per tread without damage.
1. Cross Section for Vertical Ladders: Minimum 2 inches (50.8 mm) horizontal, nominal 1 inch (25 mm) vertical.
  2. Cross Section for Ship's Ladders: Minimum 4 inches (101 mm) horizontal, nominal 1 inch (25 mm) vertical.
  3. Width: 24 inches (610 mm).
  4. Width: 18 inches (457 mm).
  5. Spacing: 12 inches (305 mm) vertically.
  6. Landings: Made up of tread members mounted side-by-side.
- C. Vertical Ladder Rails Supporting Treads: Extruded aluminum, 6063-T5 alloy, with rounded corners, approximately 4 inches (100 mm) deep; mounted so that centerline of tread is minimum of 7 inches (178 mm) from face of wall.
1. Wall Brackets: Bent aluminum plate, 2 inches (50 mm) wide by 3/16 inch (5 mm) thick.
  2. Base Brackets: Aluminum angle floor bracket, 2 by 2 by 2 by 1/8 inch (50 by 50 by 50 by 3 mm).
  3. Base Brackets: Wall bracket with additional angle brace; supporting foot of rail at least 4 inches (100 mm) above floor or grade.
- D. Ship's Ladder Rails Supporting Treads: Extruded aluminum channel stringers, 6 by 2 by 1/8 inch (150 by 50 by 3 mm).
1. Base Brackets: Aluminum angle floor bracket, 2 by 2 by 2 by 1/8 inch (50 by 50 by 50 by 3 mm).
- E. Ship's Ladder Handrails: Extruded aluminum pipe, 1-1/2 inches (38 mm) outside diameter, Schedule 40 wall thickness; formed with radiused elbows, welded to stringers.
- F. Extended Rails: 0.875 inch (22 mm) diameter aluminum tubing; formed with two parallel tubes for each length of rail, with radiused corners, assembled by welding or with stainless steel fasteners.
1. Lift-Up Rail Extensions for Hatch Ladders: 6063-T5 aluminum, .77 inch (19.56) x 3.646 inches (92.608 mm) extrusion inside the standard side rails, manually raised, lowered by means of releasing gravity latches; and extending a minimum of 42 inches (1067 mm) above top ladder tread.
  2. At Top of Ladders Leading to Roofs or Landings: Extending minimum of 42 inches (1067 mm) vertically above top of parapet or landing and extending minimum of 10 inches (254 mm) past edge of roof or landing; with free walk-through onto roof/landing.
- G. Cages: Hoops and verticals of aluminum, 2 inches (50.8 mm) wide by 0.187 inch (4.75 mm) thick; assembled with stainless steel fasteners.
1. Bottom Hoop: 18 inch (457 mm) radius with overall extension from wall of 40-3/4 inches (1035 mm).
  2. Intermediate and Top Hoops: 14 inch (355 mm) radius.
  3. Rest Platforms: Ladder tread landing, 24 by 36 inches (610 by 915 mm), with 1-1/2 inch (38 mm) outside diameter aluminum pipe railing enclosing both runs of ladder.
- H. Utility Line Bridges: 6063-T5 extruded aluminum supports, ladder tread landing, and 1/4 inch (6 mm) thick aluminum checker plate base plates; all joints mitered and welded; for loose placement on roof surface.
- I. Security Door for Vertical Ladder Without Cage: Sheet aluminum enclosure from 6 inches (150 mm) to 102 inches (2590 mm) above floor or grade; hinged for access to ladder with full height stainless steel piano hinge; secured with adjustable staple and plate for padlock.

- J. Security Door for Cage Ladder: Aluminum grid door of same construction as cage, mounted on bottom of cage, hinged down, with adjustable staple plate and hasp for padlock.
- K. Fall Arrestor: North Safety Products "Saf-T-Climb" System.
  - 1. Installed by ladder manufacturer.
  - 2. Rails: Stainless steel, Type 304 or Type 316L.
  - 3. Rails: Extruded aluminum.
  - 4. Rails: Fiberglass reinforced plastic.
- L. Anchor Bolts: Hot-dipped galvanized or stainless steel bolts; diameter as specified by ladder manufacturer; length as required to provide adequate anchorage into substrate.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Anchor securely using fasteners specified by manufacturer or others of equivalent or greater strength and corrosion resistance.

**END OF SECTION**