



## S2-CLIMBER

SPECIFICATIONS FOR STATIONARY PIT LADDER



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# 1. GENERAL

## 1.1. Purpose

This document defines the technical requirements for a stationary pit ladder designed for permanent installation in below-grade service pits, maintenance bays, and other restricted-access environments. Its purpose is to guide engineers, contractors, and facility managers in selecting, installing, and verifying ladders that meet safety, durability, and regulatory standards. The specification supports consistent fabrication, secure mounting, and long-term operational reliability.

## 1.2. Scope

This specification applies to fixed steel pit ladders intended for vertical wall mounting in industrial and commercial facilities. It covers:

Material composition and finish requirements, Dimensional parameters and rung spacing, Load ratings and structural performance, Mounting configurations and anchorage details, Hardware components and assembly guidelines, Compliance with applicable safety codes and standards

The scope excludes portable ladders, retractable systems, and any installations not intended for permanent use.

## 1.3. Applicable Standards

All pit ladder designs, materials, and installations comply with the latest editions of the following standards:

ASME A17.1-2016 through ASME A17.1-2025 – Safety Code for Elevators and Escalators

ASME CSA B44.1-14 / ASME A17.5-2014 – Elevator and Escalator Electrical Equipment

OSHA – Occupational Safety and Health Administration regulations, including 29 CFR Part 1910 Subpart D (Walking-Working Surfaces)

Where conflicts arise between standards, the most stringent requirement shall apply.

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## 2. MATERIAL SPECIFICATIONS

### 2.1. Ladder Sides

Ladder sides are fabricated from 16-gauge galvanized steel sheet (0.059" thickness), precisely laser-cut and brake-formed to shape. The galvanized finish provides inherent corrosion resistance, ensuring long-term durability in pit environments.

### 2.2. Rungs

Ladder rungs are fabricated from **aircraft-grade 6061-T6 aluminum**, selected for its high strength-to-weight ratio, excellent durability, and inherent corrosion resistance. Each rung features a **knurled surface** to enhance grip and reduce slip risk in demanding environments. The material provides reliable performance while minimizing overall ladder weight. Rungs are uniformly spaced and mechanically fastened to ensure consistent load distribution and long-term structural integrity.

### 2.3. Wall Mounting Brackets

Wall mounting brackets are fabricated from 8-gauge galvanized steel sheet (.179" thickness), precisely laser-cut and brake-formed to shape. The galvanized finish provides inherent corrosion resistance, ensuring long-term durability in pit environments.

### 2.4. Finish

Side Rails & Wall Brackets: Manufactured from pre-galvanized steel sheet, offering built-in corrosion resistance without the need for additional paint or coatings.

Rungs: Supplied in mill finish 6061-T6 aluminum. Optional clear or black anodizing is available upon request to improve surface hardness and enhance corrosion resistance.

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## **3. DIMENSIONS**

### **3.1. Overall Height**

Ladders are available in single continuous lengths ranging from 36 inches (minimum) up to 119 inches (maximum). For installations requiring heights greater than 119 inches, an extension section is provided and joined using a splice plate assembly to achieve the total required height per project specifications. This modular approach ensures structural continuity while allowing flexibility for varying site conditions

### **3.2. Rung Spacing**

Rungs are spaced at 12 inches center-to-center, meeting the requirements of OSHA 29 CFR 1910.23, ASME A17.1, and ANSI A14.3-2008 for fixed ladder design. This uniform spacing ensures safe and consistent climbing intervals across all ladder configurations, including those used in elevator pits, machine rooms, and general industrial environments. The 12-inch spacing falls within OSHA's allowable range of 10–14 inches and aligns with ASME and ANSI standards for elevator-related applications.

### **3.3. Clear Width**

Ladder rungs are designed with a minimum clear width of 16 inches between side rails, in accordance with OSHA 29 CFR 1910.23(b)(4) and ANSI A14.3-2008 requirements for fixed ladders. This ensures adequate foot placement and safe climbing access across all ladder configurations. The 16-inch clear width is measured before installation of any ladder safety systems and provides consistent compliance for both general industrial and elevator-related applications.

### **3.4. Wall Clearance**

Standard stationary ladders have a minimum clearance of 4.5 inches between side rails and adjacent walls.

## 4. WEIGHT

Approximate weight is **3.5 lbs (1.59 kg) per foot**.

For example, a **14-foot ladder** (used in a 10-foot pit) weighs approximately **49 lbs (22.23 kg)**.

## 5. STRUCTURAL CAPACITY

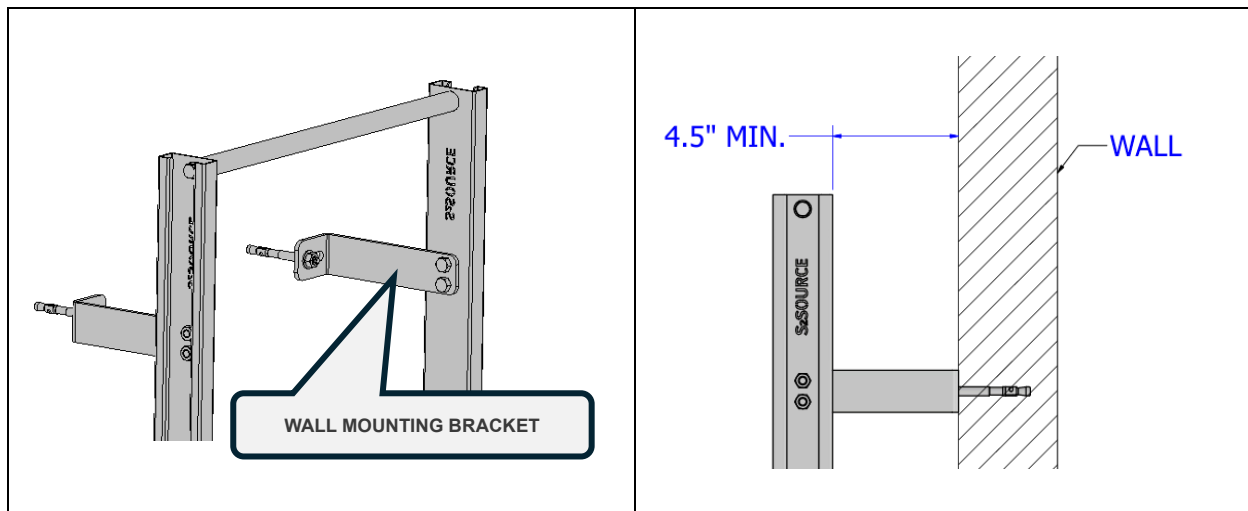
### 5.1. Load Rating

Designed to support a minimum load of 135 kg (300 lb) in normal use without fatigue.

## 6. INSTALLATION

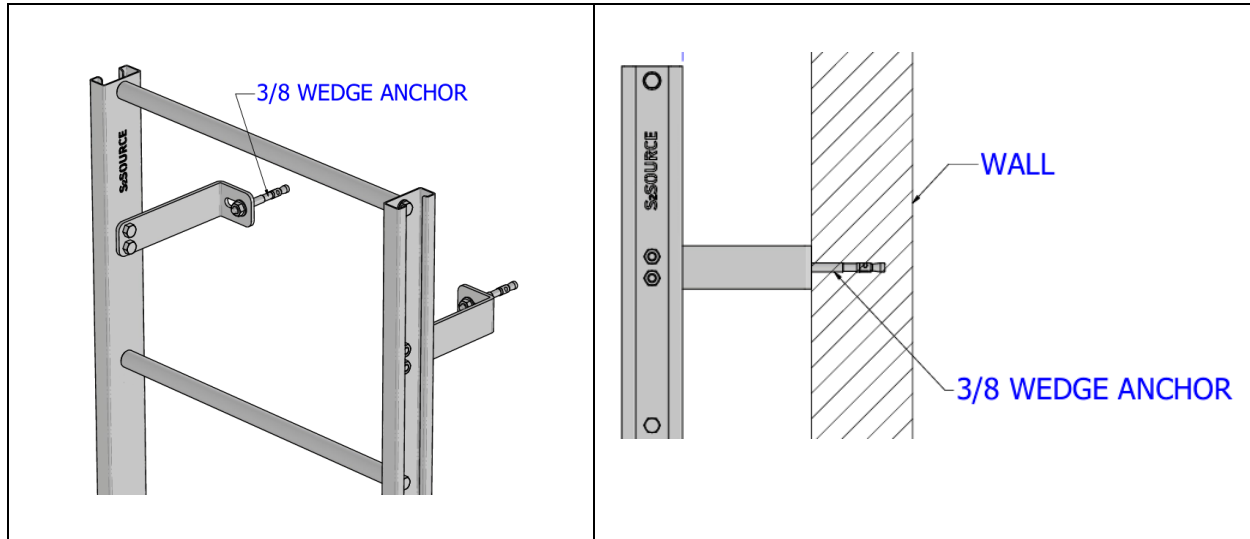
### 6.1. Wall Mounting

Wall mounting uses wall mounting brackets that maintain min 4.5 inches clearance between wall and side rails.



## 6.2. Anchorage Details

Wall mounting bracket holes are sized for a maximum 3/8" wedge anchor.



## 7. HARDWARE

### 7.1. Fasteners

#### 7.1.1. Rung Fasteners

Rungs use 5/16-18 Hex Head bolt min. 1/2 Long Finish: Clear Zinc Plated

#### 7.1.2. Wall mounting Fasteners

Wall brackets are secured to the side rails using 5/16-18 hex head bolts and anchored to the wall with 3/8" wedge anchors

## 8. ASSEMBLY INSTRUCTIONS

Each ladder includes project-specific assembly instructions in the packaging. A downloadable copy is also available on the S2Source website.

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## **9. COMPLIANCE**

### **9.1. OSHA Requirements**

All stationary ladders OSHA compliant per OSHA – Occupational Safety and Health Administration regulations, including 29 CFR Part 1910 Subpart D (Walking-Working Surfaces)

### **9.2. Standards**

All stationary pit ladders compliant to

1. ASME A17.1-2016 - ASME A17.1-2025
2. ASME CSA B44.1-14/ASME A17.5-2014