

## SECTION 05 51 33

### METAL LADDERS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

###### A. Section Includes:

1. **[Single Safety Gates]** Specialty custom designed, spring assisted, self-closing, Slam-Proof™ Safety Gates for walk through fixing ladders, floor and wall openings, holes.
2. Gate Hardware.

###### B. Related Sections:

1. Division 05 – Metal Ladders.
2. Division 05 – Pipe and Tube Railings.
3. Division 05 – Structural Steel Framing.

##### 1.2 SUBMITTALS

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

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation instructions.

###### B. Shop Drawings: Provide shop drawings showing layout, profiles, and product components, including anchorage, hardware, and finishes. Include dimensional plans, applicable material specifications, elevations and sections detailing mounting and connections.

1. Contractor to provide manufacturer with field measurements and mounting structure prior to commencement of shop drawings.

##### 1.3 CLOSEOUT SUBMITTALS

###### A. Provide Operation and Maintenance data to include methods for maintaining installed products, precautions against cleaning materials and methods detrimental to finishes and performance.

##### 1.4 QUALITY ASSURANCE

###### A. Manufacturer Qualifications: Manufacturer must demonstrate a minimum of five (5) years successful experience in design and manufacture of similar related closures. Upon request,

provide supporting evidence including list of installations, descriptions, name, and method of contact.

- B. Minimum Qualifications: Manufacturer must demonstrate compliance and certification of a Quality Management System administered by the International Organization for Standardization (ISO). Documentation of current certification status to be provided upon request.
- C. Welder Qualifications: Welders Certified in accordance with American Welding Society Procedures for applicable material used in production of specified product.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging container with identification markings intact until ready for installation.
- B. Protect materials from exposure to moisture during storage.
- C. Store materials in a dry, warm, ventilated weathertight location. If outdoor storage is required, block materials to store at an incline, to prevent pooling of any moisture and promote runoff. Tarp materials in a tent-like arrangement, elevated above the product with open sides to allow airflow. Store loose or high value components in a dry, controlled environment.
- D. Use caution when unloading and handling product to avoid bending, denting, crushing, or other damage to the product.
- E. When using forklifts, use forks of proper length to fully support product being moved. Consult "Approved for Construction" drawings or consult with factory for proper lift points.

#### 1.6 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 indicated limits.

#### 1.7 COORDINATION

- A. Conduct site survey and provide to manufacturer, prior to manufacturer's commencement of shop drawings, the actual site conditions of the mounting location, to include; material type, dimensions and configuration, interferences with mounting surface, or any other condition that may impact the ability of the gate to be properly installed.
- B. Coordinate work with other operations and installation of adjacent materials to avoid damage.

#### 1.8 WARRANTY

- A. Manufacturer's Standard Warranty: Product to be free from defects in material and workmanship for a period of one (1) year from date of shipment.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Intended as a visible and physical continuation of adjacent railing systems at elevated openings where required by U.S. Federal OSHA at time of manufacture. Product designed to meet or exceed U.S. Federal requirements of dimensions and load requirements at time of manufacturing.

### 2.2 LADDER SAFETY GATE

- A. Description: Hinged, Ladder Safety Gate including Gate Arm, Hinge Bracket, Hinge Plate, Hinge Springs, Slam-Proof™ Damper Kit, and hardware.
1. Approved Manufacturer: PS Safety Access™, which is located at: 1150 S. 48th Street, Grand Forks, ND 58201; Toll Free Tel: 877.446.1519; Email: [4psinfo@psindustries.com](mailto:4psinfo@psindustries.com); Web: [www.pssafetyaccess.com](http://www.pssafetyaccess.com) or [www.psindustries.com](http://www.psindustries.com)
    - a. Basis of Design Product: Model: LSG.
  - B. Substitutions: Not permitted.
  - C. Single Source Responsibilities: Obtain all safety gates from single manufacturer.

### 2.3 EQUIPMENT

- A. Products Details:
1. The Ladder Safety Gate is a railing continuation, self-closing, Slam-Proof™ swing gate.

a. Model/Min/Max Opening Width:

| LSG<br>MODEL # | RAILING OPENING WIDTH            |                                  |
|----------------|----------------------------------|----------------------------------|
|                | MIN.                             | MAX.                             |
| LSG-18         | 16 <sup>3</sup> / <sub>4</sub> " | 20 <sup>1</sup> / <sub>2</sub> " |
| LSG-21         | 19 <sup>3</sup> / <sub>4</sub> " | 23 <sup>1</sup> / <sub>2</sub> " |
| LSG-24         | 22 <sup>3</sup> / <sub>4</sub> " | 26 <sup>1</sup> / <sub>2</sub> " |
| LSG-27         | 25 <sup>3</sup> / <sub>4</sub> " | 29 <sup>1</sup> / <sub>2</sub> " |
| LSG-30         | 28 <sup>3</sup> / <sub>4</sub> " | 32 <sup>1</sup> / <sub>2</sub> " |
| LSG-33         | 31 <sup>3</sup> / <sub>4</sub> " | 35 <sup>1</sup> / <sub>2</sub> " |
| LSG-36         | 34 <sup>3</sup> / <sub>4</sub> " | 38 <sup>1</sup> / <sub>2</sub> " |

## 2.4 MATERIALS

- A. Ladder Safety Gate to be fabricated from the following type of material;
  - 1. Aluminum: Structural or formed shapes, tubing, plates, and bars of appropriate size and strength with welded construction.
- B. Gate Arm to be manufactured of the same material type and finish as Ladder Safety Gate.
  - 1. Formed 1 – ¼” square, ⅛” thick tubing with minimum of 5 inches of adjustment.
  - 2. Strike to be 7-gauge sheet and welded installation.
- C. Hinge Bracket to be manufactured of the following type of material;
  - 1. Stainless steel: Type 304 formed shape of appropriate size and strength.
    - a. Formed 10-gauge universal bracket to fit railings up to 2-inch O.D.
    - b. Adaptable to flat surfaces and welded installation.
- D. Hinge Plate to be manufactured of the same material type and finish as Ladder Safety Gate.
  - 1. Formed ⅛” plate to provide for minimum of 5 inches of gate arm adjustment.
- E. Hinge Springs to be torsion type, Stainless Steel.
  - 1. Provide two (2) springs per gate, housing within hinge bracket.
  - 2. Springs guaranteed for the life of the gate.
- F. Slam-Proof™ Damper Kit
  - 1. Provide one (1) Slam-Proof™ Damper Kit per gate to control closing speed of the gate to eliminate slamming and noise.
  - 2. Option to be mounted on either the top or bottom hinge bracket.
- G. Placards: Factory mounted, caution labels with graphic fall hazard symbol.
- H. Mounting Hardware: Provide U-bolts, minimum .312” diameter, to accept railing posts up to 2” diameter, washers, and locking hex nuts.
- I. Finish:
  - 1. Aluminum products to be mill finish, welds are ground smooth, not polished, and are factory acid washed, neutralized and rinsed.
- J. Packaging: Gate to be packaged with; mounting hardware in clear, labeled bags, and installation instructions.
  - 1. Standard packaging has assembled gate individually packaged in cardboard carton.
  - 2. Exterior of carton to be marked with product name, model, size, and finish.

## 2.5 FABRICATION

- A. Fit and factory assemble items in largest practical sections, for shipment to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until mounting substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another subcontractor, notify Architect of uncompleted preparation before proceeding.
- C. Inspect opening for compliance with manufacturer requirements. Verify open conditions are within required tolerances.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. 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 installation instructions, "Approved for Construction" drawings, shipping, handling, and storage instructions, and product carton instructions for installation.
- B. Tolerances: All dimensional requirements must be in accordance with manufacturer's installation instructions and "Approved for Construction" drawings.
- C. Verify that hinges and latching assemblies operate freely and correctly.
- D. Verify all anchorage is in accordance with manufacturer's installation instructions and applicable data sheets.

### 3.4 FIELD QUALITY CONTROL

- A. Product to be installed using good general construction methods and practices, in accordance with manufacturer's instructions and "Approved for Construction" drawings.

### 3.5 CLEANING

- A. Touch-up, repair or replace damaged products or components before Substantial Completion.
- B. Clean all sealing surfaces.

### 3.6 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION