

SECTION 05515
METAL LADDERS (LADDER SAFETY GATE – FALL PROTECTION)

Part 1. GENERAL

1.1 SECTION INCLUDES

- A. Specialty custom designed, spring assisted, self-closing LADDER SAFETY GATE (LSG) for walk through fixed ladders, floor and wall openings, and holes, including:
- (1) LSG-15-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (2) LSG-18-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (3) LSG-21-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (4) LSG-24-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (5) LSG-27-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (6) LSG-30-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (7) LSG-33-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (8) LSG-36-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (9) LSG-40-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (10) LSG-44-(Galvanized or Powder Coat Yellow or Stainless Steel)
 - (11) LSG-48-(Galvanized or Powder Coat Yellow or Stainless Steel)

**** NOTE TO SPECIFIER ** FOOD PROCESSING ENVIRONMENT MODEL, STAINLESS STEEL CONSTRUCTION, WITH ALL VOIDS SEAL WELDED.**

1.2 RELATED SECTIONS

- A. Section 055133 – Metal Ladders
- B. Section 055213 – Pipe and Tube Railings
- C. Section 05120 – Structural Steel

1.3 REFERENCES

- A. OSHA 1910, Subpart D, 1910.24 Fixed Industrial Ladders
- B. OSHA 1926, Subpart X, 1926.1053 Ladders
- C. OSHA Reference 29 CFR 1910.23 Guarding of floor and wall openings and holes
- D. ANSI A14.3, Safety requirements for Fixed Ladders
- E. AISC M016 Manual of Steel Construction, Allowed Stress Design
- F. ASTM A 36/A 36M Standard Specification for Structural Steel
- G. ASTM A 123 (Standard Specification for Zinc coating – Hot Dip Galvanizing of Iron and Steel Products)
- H. ASTM Z325 (Bolts, Nuts, and Washers)
- I. American Society for Testing and Materials (ASTM) - ASTM A36 Standard Specification for Carbon Structural Steel
- J. American Iron and Steel Institute (AISI) - AISI CL 304.
- K. American Welding Society Structural Welding Code (AWS) - AWS D1.1, D1.2

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1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. The LADDER SAFETY GATE is 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 OSHA requirements of dimensions and load requirements at time of manufacturing.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. 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.
- C. 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.
- D. Closeout Submittals: Provide Operation and Maintenance data to include methods for maintaining installed products, precautions against cleaning materials and methods detrimental to finishes and performance.

1.6 QUALITY ASSURANCE

- A. Experience: Manufacturer must demonstrate a minimum of Five (5) years successful experience in design and manufacture of similar related products.
- B. Welder Qualifications: Welders Certified in accordance with American Welding Society Procedures: AWS-1-GMAW-S, WPS No. B2.004.90 for applicable material used in production of specified product.

1.7 DELIVER, STORAGE, AND HANDLING

- A. Delivery
 - (1) Deliver materials in manufacturer's original, unopened, undamaged shipping container with identification labels intact.
- B. Storage
 - (1) Store all materials in a dry, controlled area to protect from elements and damage. If outdoor storage is required, block materials to store at an incline, to prevent pooling of any moisture and promote runoff.
 - (2) Do not tarp tightly, as this will entrap moisture. Instead, tarp materials in a tent-like arrangement, elevated above the product with open sides to allow airflow.
 - (3) For additional questions on delivery, storage, or handling, contact the manufacturer at 877.446.1519 or 701.746.4519 or email to 4psinfo@psdoors.com.
- C. Handling
 - (1) Use caution when unloading and handling product to avoid bending, denting, crushing, or other damage to the product.

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- (2) When using forklifts, use forks of proper length to fully support product being moved.

1.8 WARRANTY

A. Special Warranty

- (1) The manufacturer provides a warranty on this product and components to be free from manufacturing defects for a period of One (1) year from ship date.

1.9 MAINTENANCE

- A. Routine inspections and maintenance (Determined by owner).
- B. General housekeeping of immediate area.
- C. Immediate replacement or repair of damaged or missing components.

Part 2. PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: PS DOORS, 1150 S 48th Street, Grand Forks, ND 58201.
Phone Toll Free: 800-284-0623. Phone: 701-746-4519. Fax: 701-746-8340.
Web Site: www.psdoors.com. E-mail: 4psinfo@psdoors.com.
- B. Substitutions: Not permitted.
- C. Obtain all LADDER SAFETY GATE assemblies from single manufacturer.

2.2 EQUIPMENT

A. Products Details:

- (1) The LADDER SAFETY GATE is a railing continuation, self-closing swing gate.
- (2) Model/Min/Max Opening Width:
 - a) Model: LSG-15-(13-3/4" - 17-1/2")
 - b) Model: LSG-18-(16-3/4" - 20-1/2")
 - c) Model: LSG-21-(19-3/4" - 23-1/2")
 - d) Model: LSG-24-(22-3/4" - 26-1/2")
 - e) Model: LSG-27-(25-3/4" - 29-1/2")
 - f) Model: LSG-30-(28-3/4" - 32-1/2")
 - g) Model: LSG-33-(31-3/4" - 35-1/2")
 - h) Model: LSG-36-(34-3/4" - 38-1/2")
 - i) Model: LSG-40-(38-3/4" - 42-1/2")
 - j) Model: LSG-44-(42-3/4" - 46-1/2")
 - k) Model: LSG-48-(46-3/4" - 50-1/2")

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- (3) Material requirements: See Section 2.3 MATERIALS

2.3 MATERIALS

A. Attributes

- (1) The LADDER SAFETY GATE is to be fabricated from structural or formed steel shapes, ASTM A569; tubing, ASTM-A-513; bars, ASTM-A-36; of appropriate

size and strength, welded construction. Optional materials include Stainless Steel (304 or 316L).

- (2) Gate Arm: Gate Arm to be formed 1-1/4" square, 11 gauge tubing with a minimum of 3-3/4" (-1-1/4" to +2-1/2") of adjustment.
- (3) Clamp Bracket: 10 gauge universal Pivot Clamp Bracket to fit railings up to 2" O.D. Bracket is adaptable to flat surfaces, and welded installation.
- (4) Hinge Plate: 10 gauge Hinge Plate to provide for gate arm adjustment of 3"-3/4" (-1-1/4" to +2-1/2") inches total horizontal adjustment.
- (5) Hinge Springs: Springs to be torsion type, stainless steel. Provide two (2) springs per gate, housed within hinge pivot.

Part 1. NOTE TO SPECIFIER ** ANY MODEL NUMBER HIGHER THAN LSG-36 WILL HAVE: HINGE AND PIVOTS, THREE (3), TORSION TYPE, STAINLESS, SPRINGS PER GATE, HOUSED WITHIN HINGE PIVOT.**

- (6) Placards: Include two factory applied caution labels with graphic fall hazard symbol and the statement "Safety First". Placards shall be safety yellow background color with black graphics.
- (7) Mounting Hardware: to include zinc plated U-bolts, minimum .312" diameter, to accept railing posts up to 2" diameter. Include locking hex nuts.

**** NOTE TO SPECIFIER ** ANY MODEL NUMBER HIGHER THAN LSG-30 WILL COME WITH A SUPPORT BLOCK.**

- (8) Finish on all exposed surfaces to be Hot Dip Galvanized, Power Coat Safety Yellow, Stainless Steel. Stainless Steel products to be mill finish, welds are ground smooth, not polished, and are factory acid washed, neutralized and rinsed.
- (9) Packaging: Gate to be fully assembled, with mounting hardware and installation instructions mill cloth bagged and attached to gate. Standard packaging has assembled gate individually packaged in cardboard carton. Exterior of carton to marked with product name, model, size, and finish.

2.4 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery 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. Compliance: Comply with all manufacturer's product data, including installations instructions, reference drawings, shipping, handling, and storage instructions, and product carton instructions for installation.

3.2 PREPARATION

- A. Verify mounting surface is capable of supporting installation and meeting load requirements.
- B. Clean surfaces thoroughly prior to installation.

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3.3 INSTALLATION / APPLICATION

A. LADDER SAFETY GATE Installation

- (1) Install in accordance with manufacturer's installation instructions, shop drawings, and details.
- (2) All bolted connections must be tight with no fewer than two threads exposed and the nuts are to be positively locked by provide lock nuts.

B. Tolerances

- (1) All dimensional requirements must be in accordance with manufacturer's installation instructions and shop drawings.

3.4 FIELD QUALITY CONTROL

A. Installation: Product to be installed using good general construction methods and practices, in accordance with manufacturer's instructions and drawings.

B. Field Tests / Installation Verification:

- (1) Verify all anchorage is in accordance with manufacture's installation instructions and applicable data sheets.

3.5 CLEANING

A. Repair or replace damaged installed products or components.

B. Touch up damaged finish.

3.6 PROTECTION

A. Protect installed product and finish surfaces from damage during handling, storage, and installation.

B. Protect installed product and finish surfaces during normal and general use.

END OF SECTION