

SECTION 05515

METAL LADDERS (LADDER SAFETY GATE – FALL PROTECTION)

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Specialty custom designed, spring assisted, self-closing FULL HEIGHT LADDER SAFETY GATE (LSG) for walk through fixing ladders, floor and wall openings, holes, including:
 - 1. LSGF– Model Numbers: LSGF-18-(GAL/PCY/SS), LSGF-21-(GAL/PCY/SS), LSGF-24-(GAL/PCY/SS), LSGF-27-(GAL/PCY/SS), LSGF-30-(GAL/PCY/SS), LSGF-33-(GAL/PCY/SS), LSGF-36-(GAL/PCY/SS).

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. ANSI MH28.3 Specification for the Design, Manufacture, and Installation of Industrial Steel Work Platforms
- F. AISC M016 Manual of Steel Construction, Allowed Stress Design.
- G. ASTM A36/ A36M Standard Specification for Structural Steel
- H. ASTM A 123 (Standard Specification for Zinc Coating – Hot Dip Galvanizing of Iron and Steel Products).
- I. ASTM Z325 (Bolts, Nuts, and Washers)
- J. American Society for Testing and Materials (ASTM) – ASTM A36 Standard Specification for Carbon Structural Steel.

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- K. American Iron and Steel Institute (AISI) – AISI CL 304.
- L. American Welding Society Structural Welding Code (AWS) – AWS d1.1, D1.2

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. The FULL HEIGHT 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. 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. 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 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging container with identification labels intact until ready for installation.
- B. Protect materials from exposure to moisture.

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- C. Store materials in a dry, warm, ventilated, weather-tight 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 all other hardware 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 shop drawings or consult with factory for proper lift points.

1.8 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 absolute limits.

1.9 WARRANTY

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

1.10 COORDINATION

- A. Coordinate work with other operations and installation of adjacent materials to avoid damage.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Approved Manufacturer: PS Access Solutions™, 1150 S 48th Street, Grand Forks, ND 58201. Toll Free Tel: 877-446-1519. Web Site: www.psaccesssolutions.com or www.psindustries.com E-mail: 4psinfo@psindustries.com.
- B. Substitutions: Not permitted.
- C. Obtain all FULL HEIGHT LADDER SAFETY GATE assemblies from single manufacturer.

2.2 EQUIPMENT

- A. Product Details:
 - 1. The FULL HEIGHT LADDER SAFETY GATE is a railing continuation, self-closing swing gate.

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a. Model/Min/Max Opening Width.

MODEL NUMBER	OPENING WIDTH	
	MIN	MAX
LSGF-18	16 ¾"	20 ½"
LSGF-21	19 ¾"	23 ½"
LSGF-24	22 ¾"	26 ½"
LSGF-27	25 ¾"	29 ½"
LSGF-30	28 ¾"	32 ½"
LSGF-33	31 ¾"	35 ½"
LSGF-36	34 ¾"	38 ½"

2. 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).
2. Gate Arm: Gate Arm to be formed 1-1/4" square, 16 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.
6. Toeboard: To be 5" tall adjustable toeboard made from 1/8" Kydex.
7. 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.
8. Mounting Hardware: to include zinc plated U-bolts, minimum .312" diameter, to accept railing posts up to 2" diameter. Include locking hex nuts.
9. Finish on all exposed surfaces to be Hot Dip Galvanized, Power Coat Safety Yellow, or Stainless Steel. Stainless Steel products to be mill finish, welds are ground smooth, not polished, and are factory acid washed, neutralized and rinsed.
10. 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.

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- 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 substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

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 installations instructions, approved shop drawings, shipping, handling, and storage instructions, and product carton instructions for installation.
- B. Toeboard must be installed with the bottom edge to be no more than ¼" off of walking/working surface.
- C. Tolerances: All dimensional requirements must be in accordance with manufacturer's installation instructions and shop drawings.

3.4 FIELD QUALITY CONTROL

- A. Product to be installed using good general construction methods and practices, in accordance with manufacturer's instructions and drawings.
- B. Verify that hinges and latching assemblies operate freely and correctly.
- C. 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.

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- B. Touch up damaged finish.

3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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