

## SECTION 05 52 00

### VERTICAL MEZZANINE GATE

#### PART 1 - GENERAL

##### 1.1 SECTION INCLUDES

- A. Specialty custom designed, manual, fully electric, electric/pneumatic, or fully pneumatic VERTICAL MEZZANINE GATE (Patent Numbers 5,806,245) for elevated openings, including,

**\*\*Note to Specifier\*\* Consult Manufacturer for dimension requests/requirements/limitations.**

1. Model Number: MGV-XX (Manual Operation)
2. Model Number: MGVE-XX (Electric Operation)
3. Model Number: MGVEP-XX (Electric/pneumatic Operation)
4. Model Number: MGVP-XX (Fully Pneumatic Operation)

**\*\*Note to Specifier\*\* Food processing environment model, stainless steel construction, with gate voids seal welded.**

##### 1.2 RELATED SECTIONS

- A. Section 03300 – Cast-In-Place Concrete.
- B. Section 05520 – Safety Railings.
- C. Section 05120 – Structural Steel.

##### 1.3 REFERENCES

- A. OSHA Reference 29 CFR 1910.23 Guarding of Floor and Wall Openings and Holes
- B. AISC M016 Manual of Steel Construction, Allowed Stress Design
- C. ASTM A 36/A 36M Standard Specification for Structural Steel
- D. ASTM Z325 (Bolt, Nuts, and Washers)
- E. American Society for Testing and Materials (ASTM) - ASTM A36 Standard Specification for Carbon Structural Steel
- F. American Iron and Steel Institute (AISI) - AISI CL 304.
- G. American Welding Society Structural Welding Code (AWS) - AWS D1.1, D1.2

##### 1.4 DESIGN / PERFORMANCE REQUIREMENTS

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- A. The VERTICAL MEZZANINE GATE is intended as a visible and physical continuation of adjacent railing systems at elevated openings where required by U.S. Federal OSHA. 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.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

## 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. Provide evidence to the effect, including list of installations, descriptions, name and method of contact shall be provided, upon request.
- C. 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 email to [4psinfo@psindustries.com](mailto:4psinfo@psindustries.com).

C. Handling

1. Use caution when unloading and handling product to avoid bending, denting, crushing, or other damage to the product.
2. 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 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.

## 1.9 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. Approved Manufacturer: PS Access Solutions®, 1150 S. 48<sup>th</sup> Street, Grand Forks, ND 58201. Toll Free Tel: 877-446-1519. Web Site: [www.psaccesssolutions.com](http://www.psaccesssolutions.com) or [www.psindustries.com](http://www.psindustries.com). E-mail: [4psinfo@psindustries.com](mailto:4psinfo@psindustries.com).
- B. Substitutions: Not permitted.
- C. Request for substitutions will be considered in accordance with provisions of Section 01600.
- D. Obtain all VERTICAL MEZZANINE GATE assemblies from single manufacturer.

### 2.2 EQUIPMENT

A. Products Details:

1. The VERTICAL MEZZANINE GATE provides fall protection to elevated railing openings.
2. Model/Operation Options:
  - a. Model Number: MGV-XX (Manual Operation)
  - b. Model Number: MGVE-XX (Electric Operation)

- c. Model Number: MGVEP-XX (Electric/pneumatic Operation)
- d. Model Number: MGVP-XX (Fully Pneumatic Operation)

**\*\*Note to Specifier\*\* Food Processing Environment Model, Stainless Steel Construction, with Gate voids seal welded.**

- 3. Material requirements: See Section 2.3 MATERIALS.

## 2.3 MATERIALS

### A. Attributes

- 1. The VERTICAL MEZZANINE GATE is to be fabricated from structural or formed steel shapes, ASTM A-513; tubing; ASTM-A-500 Grade B, structural tube; ASTM-A-569, bars; of appropriate size and strength, welded construction. Optional materials include Stainless Steel (304)
- 2. Height: 42 inches (1067 mm).
- 3. Mid-rail: Weld to posts at 21 inches (533 mm).
- 4. Toeboard: 4 inches (102 mm).
- 5. Vertical Members: Not to exceed 8 feet on center.
- 6. Rollers: To be minimum 2 5/8" inch diameter, concealed within Toeboard. Rollers to be non-corrosive material.
- 7. Placards: Include two (2) factory applied caution labels that describe the gate as being operable.
- 8. Hardware:

**\*\*Note to Specifier\*\* Different hardware may be provided with different Mezzanine Gate Sizes. (See Packing List)**

**\*\*Note to Specifier\*\* Select one (1) of the Operation Types above and delete those that do not apply.**

- 9. Finish on all exposed surfaces to be Powder Coat Safety Yellow, or Stainless Steel. Stainless Steel products to be mill finish, welds are ground smooth, not polished, and are factory acid washer, neutralized and rinsed.

**\*\*Note to Specifier\*\* If choosing automated operation, please see Operator Specification below. Select one (1) Operator and delete those that do not apply.**

- 10. DC Electric Operation:
  - a. One (1), 1/3 HP Low Voltage DC Electric Motor with all motor mounting hardware and drive system components.
  - b. One (1), Pre-wired Control Panel (24 Volt DC controls) with integral push button assembly. Control Panel has built in Limit and Obstruction Sensors.
  - c. Requires: 120 Volt, 10 AMP minimum, Single-Phase power supply (by others).
  - d. Built-in Remote-control Receiver with non-volatile memory for up to 60 different transmitter codes, customer programmable.
- 11. Pneumatic/Electric Operation:
  - a. Pneumatic cylinder to be double acting stainless steel construction. Cylinder to be factory mounted within operator housing. Provide hinged

- b. or removable access covers at operator housing.
  - b. Controls: Provide manually operated electric valves to operate gate system. Main control panel to have directional control valve, filter-regulator-pressure gauge, and speed adjustment valves for up and down speeds. Control panel to be factory prepared to receive 1/4" OD nylon tubing into bulkhead fittings. Operator requires 110 VAC supply voltage, and 100 PSI clean, dry compressed air. Control circuits are 24 VAC. Main control panel to be independently housed in a NEMA 12 JIC enclosure.
  - c. Control Stations: Control stations to be low voltage (24 VAC) manual push-button controls. Two (2) surface mount two-button (open-close) control station included standard per gate. (Additional control stations available as options.) Control stations to be NEMA 1.
  - d. Optional Equipment: Provide Visual Warning Light which operates while gate is in the open position. Light turns off when close signal is activated. Light is factory located on control panel bottom.
12. Pneumatic/Pneumatic Operation: Qualifies for most hazardous location installations. Pneumatic cylinder to be double acting stainless steel construction. Cylinder to be factory located within vertical support tube member at either side of opening. Provide removable access covers at maintenance openings in support columns. Operator requires 100 PSI clean, dry compressed air.
- a. Controls: Provide manually operated pneumatic valve to operate gate system. Main control panel to have directional control valve, filter-regulator-pressure gauge, and speed adjustment valves for up and down speeds. Control panel to be factory prepared to receive 1/4" OD nylon tubing into bulkhead fittings. Main control panel to be independently housed in a JIC enclosure.
  - b. Control Stations: Control stations to be pneumatic operated manual push-button controls. Air volume cycle, provide two (2) 2-1/4" diameter push buttons (Open-Close). Control stations to be factory assembled with 1/8" OD nylon tubing connections factory located in bulkhead fittings on the top of the JIC enclosure. (2) two-button, open-close control station included standard per door (additional control station or pull cord activation available as options).

## 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.

**\*\*Note to Specifier\*\* Supplied components will differ based on the type of operation selected and the type of mount (face/deck) selected.**

## 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. 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/APPLICATION

- A. VERTICAL MEZZANINE 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