Davis Door Service, Inc.
2021 S. Grand St. Seattle, WA 98144-4526,
Phone# 206-324-9101 • Fax# 206-324-9104,
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DIVISION 08 - OPENINGS

CSI SECTION 083620- VERTICAL LIFT DOORS

PART 1 GENERAL

1.1 SUMMARY

A. Provide a complete **Vertical Lift Gate System**, including all components required for a fully functional installation.
System shall include but not be limited to:
1. Fabricated aluminum gate panels with welded tubular frame and sheeting overlay.
2. Structural steel support towers and mounting hardware.
3. Electric gate operator with integrated control system.
4. Panel interlocks, bottom panel arrestor, and entrapment protection devices.
5. Electrical controls, safety devices, and accessories necessary for safe and reliable operation.

B. Work includes fabrication, factory finishing and calibration, delivery, and installation of the complete gate assembly as indicated on the drawings and specified herein.

C. Coordinate work of this Section with related trades, including concrete foundations, reinforcement, electrical power supply, and control wiring.

D. System shall be suitable for exterior industrial or commercial applications and designed for high-cycle, low-maintenance operation consistent with products manufactured by Davis Door Products.

2.1 RELATED SECTIONS

A. Section 03300 - Cast-In-Place Concrete: Prepared opening in concrete. Execution requirements for placement of anchors in concrete wall construction.

B. Section 04810 - Unit Masonry Assemblies: Prepared opening in masonry.

C. Section 05500 - Metal Fabrications: Steel frame and supports.

D. Section 08710 - Door Hardware

E. Section 11150 - Parking Control Equipment: Remote door control.

F. Section 16150 - Wiring Connections: Electrical service to door operator.

G. Division 26 Electrical section for raceways and boxes and wiring requirements for electrical service to door operator.

3.1 REFERENCES

A. ANSI/DASMA 108-2017 – Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference.

B. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
C. ASTM F2200 – Standard Specification for Automated Vehicular Gate Construction.
D. ASTM A123 – Zinc hot-dipped galvanized coatings on iron and steel products.
E. ASTM A653 - Steel sheet, zinc-coated galvanized by the hot-dipped process, commercial quality.
F. ASTM E84 - Tunnel test for flame spread and smoke developed index.
G. ASTM E330 - Structural performance of exterior windows, curtain walls, and doors by uniform static air pressure difference.

4.1 DESIGN / PERFORMANCE REQUIREMENTS

A. Power Requirement options [Specifier to choose one]:
1. 120 Volts, Single Phase, 60Hz, 20A
2. 230 Volts, Single Phase, 60Hz, 20A
3. 230 Volts, Three Phase, 60Hz, 20A
4. 460 Volts, Three Phase, 60Hz, 20A

B. Wind load Design: The gate assembly shall be designed and constructed to resist the design wind loads and deflection limits indicated on the Contract Documents**.**

C. Standard-Duty Doors: Furnished with components capable of achieving cycle ratings up to 1,000,000 operations.
1. Heavy-duty or oversized doors may not be capable of achieving this rating due to increased mass and operating loads.
a. Provide components with the **maximum feasible cycle rating** appropriate to the specific door configuration.

D. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

E. Compliance:
1. Gate Operator and Control System: Comply with UL 325.
2. Gate Construction: Comply with ASTM F2200 - Standard Specification for Automated Vehicular Gate Construction.
3. Electrical Installation: Conform to NFPA 70 - National Electrical Code (NEC).
4. All applicable local building and electrical codes apply.

F. Comply with performance requirements of this Section without failure due to defective manufacture, fabrication, installation, or other defects in construction

5.1 SUBMITTALS

A. General: Submit in accordance with 01 33 00 – Submittal Procedures.

6.1 ACTION SUBMITTALS

A. Product Data:
1. Manufacturer’s standard construction details, materials, dimensions, profiles of door sections, and finishes.
2. Operating characteristics, electrical characteristics, rated capacities, and included accessories.

B. Shop Drawings:
1. Plans, elevations, sections, and attachment details.
2. Opening dimensions, required tolerances, and installation clearances.
3. Connection details and field-assembly requirements.
4. Power and control wiring diagrams.

C. Samples:
   1. Color and Finish Samples: Color chips or finish samples shall be optional and provided upon request.
   2. Sheeting Pattern Sample: Sheeting pattern sample shall be optional and provided upon request.

7.1 INFORMATIONAL SUBMITTALS

A. Sample Warranty: Submit manufacturer's standard warranty for review.
B. Manufacturer's Certificates - Certify that products meet or exceed specified performance and material requirements.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data - Include operation instructions, recommended maintenance procedures, cleaning recommendations, and replacement parts information.

8.1 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.
C. Single-Source Responsibility - Provide the complete gate system—including doors, panels, gate structure, operators, controls, safety devices, and accessories—from a single manufacturer. The primary manufacturer shall assume responsibility for the overall system performance, and integration. Secondary components shall be products approved or recommended by the primary manufacturer.

9.1 DELIVERY, STORAGE, AND HANDLING

A. Protect materials from exposure to moisture until ready for installation.
B. Store materials in a dry location

10.1 PROJECT CONDITIONS

A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

11.1 WARRANTY

A. Special Warranty: Manufacturer's standard written warranty, in which the manufacturer agrees to repair or replace sectional door components that fail in materials or workmanship within the specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Structural failures, including excessive deflection.
      b. Faulty operation of hardware.
      c. Deterioration of metals, finishes, or other materials beyond normal weathering and use, including rust-through.
      d. Delamination of exterior or interior facing materials.
B. Warranty Period: Five (5) years
C. Warranty Commencement: Warranty period shall begin on the date of Substantial Completion**.**

PART 2 PRODUCTS

1.2 MANUFACTURER

A. Acceptable Manufacturer:

1. Davis Door Service Inc., 2021 S. Grand St. Seattle, WA 98144-4526
   Phone# 206-324-9101 • Fax# 206-324-9104 • Email: info@davisdoor.com
   Website: https://davisdoorproducts.com/

B. Substitutions: Not permitted.

2.2 VERTICAL LIFT GATE CONSTRUCTION

A. Gate Panel Assembly: Each gate panel shall be constructed of a welded aluminum tube frame with an exterior mechanically attached aluminum sheeting overlay providing a smooth, finished surface.

1. Frame Material: 6063-T52 & 6061-T6 Aluminum Tubing conforming to ASTM B221.
2. Sheeting Material

   (Specifier to choose one from standard offering):
   [Specifier Note: Additional aluminum sheet patterns and perforation styles are available from McNICHOLS® upon request]

   a. Solid Aluminum Sheet, .090" Thick, 3003-H14
   b. ¾ No.125 Flat Exp Alum Sheet, 1/8" Thick 5005-H34
   c. ½ Round 11/16 Stag Perf Alum,1/8" Thick, 3003-H14
   d. ¼" Impact Resistant Polycarbonate— clear or tinted as specified.

B. Gate Towers: Gate towers shall consist of a two-tower system. Panel counterbalancing shall be accomplished by roller chains, machined steel sprockets, and individual steel counterweights traveling within separate UHMW-lined counterweight guides. The system shall utilize heavy-duty, four-bolt cast flange bearings and high-strength, fatigue-resistant shafts designed to transmit torsional loads and provide long service life. Both towers shall guide and support the panel sections throughout the full range of operation.

1. Weight Box Tower – housing the operator and counterbalance components.
2. Idler Tower – providing panel alignment, guide support, and structural stability.
3. Structural Steel Construction
   a. Sheet steel components: Minimum 10 gauge, conforming to ASTM A653, hot-dipped galvanized.
   b. Structural shapes, plates, and bars: ASTM A36.

C. Panel Guide Tracks - Extruded aluminum tracks shall be used to minimize contact with continuous low-friction UHMW guides, eliminating metal to metal contact, reducing noise and vibration. Tracks also allow the door to breakaway in the event of impact with a vehicle.

1. Finish and Color Options:
   [Specifier to choose one]
2. Mill Finish: Uncoated aluminum in its as-manufactured condition (extruded or rolled), with no supplemental surface treatment.

3. Powder-Coat Finish (Cardinal or Tiger): Factory-applied thermoset powder coating in architect-selected RAL color and sheen; applied per manufacturer's standard process.
4. High-Performance Paint Finish (Artisan Kynar): Factory-applied, fluoropolymer-based coating providing superior UV and corrosion resistance; color and sheen as selected by Architect.

D. Standard Gate Security Features
1. Panel Interlocks – Panels are interlocking to prevent independent lifting of any single panel. Each interlock shall engage adjacent panels such that no individual panel can be raised unless the entire gate assembly is lifted as a single unit.
2. Bottom Panel Arrestor - bottom panel arrestor designed to prevent the gate from being opened except through normal operation of the gate operator. The arrestor also serves as a mechanical stop to arrest the bottom panel in the event of uncontrolled descent or loss of drive control preventing damage and ensuring operator safety.

E. Electric Gate Operator [Specifier to choose one]:
1. Industrial duty All-O-Matic SL100DC Motor System
   a. Opening speed: 2-fps with soft start and stop
2. BTR SD-120.30 Operator – Next generation high performance VFD encoder controlled operator with manual hand chain operation.
   a. Opening speed: 2-fps with soft start and stop
   b. Ingress Protection: IP55

F. Entrapment Protection Devices - A combination of the following devices shall be furnished as required to achieve full compliance with UL 325:
1. Two-Wire Reversing Electric Sensing Edge with Integrated Bottom Seal - Provide a flexible, two-wire, non-monitored electric sensing edge combined with a weather-resistant bottom seal. The device shall serve as both an environmental seal and a contact-type entrapment protection system, sending a signal to the gate operator to stop and reverse motion upon contact with an obstruction. (UL 325 Compliant)
2. Panel Electric monitored sensing edge. (UL325 Compliant)
3. Monitored Photoelectric sensors. (UL 325 Compliant)

G. Operator Control Station - Provide operator control stations to control gate opening, closing, and emergency stop functions. Controls shall be compatible with the specified gate operator and comply with applicable electrical and safety standards.
1. Control Types:
   a. Push-Button Control Station
   b. Key-Operated Control Station
   c. Push-Button and Key-Operated Combination Control Station
2. Gate Controls Mounting and Location shall be within visual line of sight of the door and 60" above finished floor.
   a. Flush mounting.
   b. Surface mounting.
   c. Interior location.

d. Exterior location.
e. Both interior and exterior location.

H. Optional Acoustic Isolators – When required, vibration-dampening acoustic isolators shall be installed between the gate support structure and building anchorage.
1. Mason Industries isolator mounts

I. Additional Options:
1. Weather-stripping (where applicable)
2. Specialty overlay panel sheeting
3. Powder coating or High Performance painting
4. Free exit motion sensor
5. Free exit loop pad
6. Receiver / Transmitters

PART 3 EXECUTION

1.3 PRE INSTALLATION SITE SURVEY

A. Do not begin installation until openings have been properly prepared.

B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

C. Verify that electrical power is available, properly sized, and of the correct voltage, phase, and frequency as specified for the gate operator system.

D. If preparation is the responsibility of another installer, notify customer of unsatisfactory preparation before proceeding.

E. Verify Reinforcement (Rebar) Locations:
1. Prior to drilling, coring, or anchor installation, verify the location, depth, and spacing of reinforcing steel within concrete substrates.
2. Verification may be performed by review of structural drawings or by use of scanning methods such as ground penetrating radar (GPR) or rebar locators.
3. Scanning may be performed by the Installer or by others, depending on contract scope and project requirements.
4. Coordinate scanning responsibility with the Owner or General Contractor prior to commencement of work.
5. Report any conflicts, obstructions, or insufficient embedment conditions to the Engineer or Owner before proceeding.

2.3 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.

3.3 INSTALLATION

A. Install steel towers and aluminum vertical lift panels in accordance with approved shop drawings and the manufacturer's printed instructions.

B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.

C. Anchor assembly to wall construction and building framing without distortion or stress.

D. Fit and align door assembly including hardware.

E. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

F. Provide proper operating procedures and maintenance schedule.

4.3 FINAL CALIBRATION AND CLEAN-UP

A. Compliance Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Adjust hardware and operating assemblies for smooth and quiet operation.

C. Clean gates with non-abrasive materials and methods recommended by manufacturer.

D. All damaged, marred, or improperly finished components shall be repaired or replaced prior to final acceptance.

5.3 FINAL INSPECTION AND ACCEPTANCE

A. Final Inspection- Upon completion of installation and final calibration, conduct a joint inspection with the customer or authorized representative to verify full and proper operation of all assemblies and components.

B. Documentation - Provide all required submittals and documentation, including:

1. Operation and maintenance manuals
2. As-built drawings reflecting final installation conditions
3. Warranty certificates and material test reports, if applicable

C. Training - Provide end-user training on gate operation, routine maintenance procedures, and basic troubleshooting. Confirm the operator’s understanding and demonstrate proper use.

D. Acceptance - Obtain written confirmation of acceptance from the customer upon successful demonstration of performance, completion of all required documentation, and correction of any punch list items.

END OF SECTION