



(Project NO.)

(Date)

(PROJECT NAME)

(PROJECT LOCATION)

SECTION 08 34 16.20

VERTICAL LIFTING FABRIC DOORS

PART 1: GENERAL

It is the intent of this specification to identify design requirements and minimum standards for the quality, construction, delivery, installation, and operation of the vertical lifting fabric door. Minor variations, in accordance with standard practice, shall be indicated in shop drawings and submitted for approval.

1.1 CODES AND STANDARDS: The following standards form a part of this specification to the extent mentioned. References in the body of this specification are by basic designation only.

1.1.1 American Society for Testing and Materials (ASTM)

1.1.2 National Electrical Manufacturer's Association (NEMA)

1.1.3 Underwriters Laboratories, Inc. (UL)

1.2 QUALITY ASSURANCE:

1.2.1 The material, construction, and operation of the door shall conform to the performance specifications contained herein. Approved manufacturer is:

MAXDoor, LLC.
1020 W. 14 Mile Rd.
Clawson, MI 48017-1408
Phone: (248) 915 5838

1.2.2 Manufacturer shall warrant mechanical and electrical components against defects in materials and workmanship for one year beginning from the delivered date.

1.2.3 Each vertical lifting fabric door shall be furnished as a complete unit produced by one manufacturer, including hardware, accessories, and door control components.

1.3 MANUFACTURING AND INSTALLER QUALIFICATIONS:

1.3.1 The vertical lifting fabric doors shall be the product of a manufacturer who has had at least ten years experience in design, fabrication, erection, and service, and who is regularly engaged in the manufacture of the type of door specified herein. Only manufacturers who can submit evidence of actual installations of comparable design and construction, and that the products have proven practical, durable, and require a minimum of maintenance, will be qualified under this specification.

1.3.2 Installation of the doors shall be by an authorized representative of the door manufacturer and shall be in accordance with approved installation drawings. Mechanics shall be skilled and experienced in the erection of doors of the type specified herein.



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1.4 DESIGN REQUIREMENTS:

1.4.1 Door Design: The manufacturer shall design the door in accordance with the criteria specified herein. Doors should operate properly without binding, interference, or damage to the adjacent structure.

1.4.2 Wind Load: Doors shall be designed to withstand a minimum wind pressure of 20-psf acting alternately inward or outward. Higher wind load ratings are available.

1.4.3 Door Speed: Single speed doors operate at 8 -12 inches per second when opening or closing. Custom speeds are available. Contact the manufacturer for your specific application.

1.4.4 Door Weight: The overhead support structure should be designed for a load of 100 lb./ft. width.

1.4.5 Head-member and Side Frames: The door is to be provided with a Head-member that utilizes a steel frame with bearing plates and main Shaft. The head-member structural steel frame is attached to the building steel structure. The Door can be installed face of wall mount or under lintel and between jambs. The Head Member can be supported via a wide-flange beam or other structural member that accommodates a strong simple connection. All door frame steel is primed painted Black.

1.4.6 Door Guides are 2 Sections of 3" x 3" Aluminum angle. A Front and Rear that can be easily removed for service and maintenance. Door Guides are shipped cut to size, drilled and ready to install. Aluminum Door Guides have a standard mill finish. Door Guide fasteners are included.

Optional C15 x 33.9 steel channel side frames can be provided. The Side Frames shall be cut to size, straightened and shipped ready to install. The Side Frames utilize a full length C6 x 9 steel channel, as a stiffener to the C15 side frames. The Door Guides are fabricated from aluminum angles that are bolted to the side frames.

1.5 SUBMITTALS:

1.5.1 Product Data: Submit manufacturer's product data, roughing in diagrams for head and jambs, and installation instructions for door unit.

1.5.2 Submit shop drawings for special components which are not fully detailed on the manufacturer's data sheets.

1.5.3 Samples: Submit color samples of panel fabric for approval. Standard Colors are: White, Black, Tan, Blue, Gray, Red, Yellow, Brown and Green

1.5.4 Operating Drawings and Instructions: Furnish the following at the completion of the installation:

1.5.4.1 Product data and/or shop drawings and wiring schematics for doors.

1.5.4.2 Complete manufacturer's manuals containing instructions for operation and maintenance of doors.

1.6 DELIVERY AND STORAGE:

1.6.1 Supplier shall provide shipment of all materials in the manufacturer's protective packaging to the job site. Delivery of materials shall be in original rolls, packages, boxes, or crates bearing the manufacturer's name, brand, model number, and installation location.

1.6.2 The general contractor is responsible for receiving, unloading, and storage of materials. Storage shall be in dry locations with adequate ventilation, free from dust and water, and available for inspection and handling. Handle doors carefully to prevent damage. Remove damaged items that cannot be restored to like-new condition and replace them with new items.



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PART 2: PRODUCT

2.1 DOORS:

2.1.1 Door Fabric: The one-piece fabric panel shall cover both sides of the door. The Custom blend fabric shall be a heavy-duty vinyl coated fabric weighing approximately 22-ounces per square yard, capable of carrying 250 pounds per inch per panel. It shall be UV stabilized and suitable to withstand temperatures between -35 to +158 degrees F. The fabric shall be one piece go over the top Beam and down the other side. The Fabric will attach pass from front to back by passing through the area between the top beam and bottom of the head member. The Fabric shall be manufactured with a semi-glossy finish and clean up easily via power wash.

2.1.2 Door Beams: The Top horizontal beam shall have one lifting belt guide roller device per lifting belt. The intermediate beams shall be a rectangle aluminum tube profile with a load capacity dependent on the door width. Rectangle Aluminum tube will be used on all horizontal beams to minimize torsional twist. The beams shall be spaced 24-48 inches apart. At the end of each beam there shall be a self-lubricating UHMW guide block. Each Beam will have several machined oval shaped cut outs that allow the lifting belts to travel through the center of the horizontal beams. The Bottom beam will have one lifting belt bottom bracket for attaching each liftin belt. Bottom belt brackets will be recessed into the bottom beam. Bottom beam will be the same size as all other traveling beams. There will be a minimum of 4 lifting belts used. Lifting belt spacing will be sufficient to keep the bottom beam flat and level. No structural steel beams are allowed.

2.1.3 Door Side Frames / Guides: The face of wall mount structural steel door side frames shall be an integral part of the door, made of steel flat plate and angles of channel with angles. The structural steel side frames are fabricated and shipped with the door guides being totally pre-assembled. When between jamb mounting the door guides will mount to the building structural steel. The Door Guides are bolted to the side frame or building steel and have sealing surfaces on the inside and the outside faces. No springs, counterweights, or mechanical latching devices shall be located inside the door guide space. The door guide area shall be free of any device that could be damaged or trapped in the door guide space should there be a collision. The Door Guides will be two 3" x 3" aluminum angles having a front and rear. The front and rear sections will be independent and removable for easy maintenance; All Jamb steel is pre-finished with a Black primer paint. Aluminum Guides shall have a factory mill finished.

2.1.4 Header Box: The Head Member will be pre-assembled. Gear-motor with Brake, Lifting Belts, Main Shaft, flange bearings, over-travel and door position Switches shipped installed and wired to the junction box. The Head Member construction will utilize a steel angle frame as an internal integral part of the head member. All Steel will be internal to the head member. The door head member shall be pre-assembled. The drive mechanism shall consist of a solid main shaft, lifting belts, belt drums and motor/s. The gear motor shall be of a reduction type with brake designed for high cycle operation. A manual brake release and manual crank shall be fitted to the operator. The gear motor should be removable without disturbing the switch adjustment limit. No springs or counterweights shall be used to facilitate door movement. All exposed steel components of the header box shall be factory primed painted black.

2.1.5A Lifting Belts: The individual lifting belts run through an oval cut out in the top and traveling horizontal beams. Multiple lifting belts are attached to the bottom beam by using individual belt brackets. Recessed belt guide rollers located inside the top stationary beam, keep the lifting belts centered in the traveling beams. Each door shall be supplied with a minimum of four Lifting Belts. The Lifting Belts are spaced across the width of the door. There are no Lifting Belts inside the door guides. Single Lifting Belt with mechanical drop devices are not allowed. The Lifting Belts will also help minimize how far the curtain can blow in between the horizontal beams when the door is closed. The Lifting Belts shall be position so that they are free to travel with the Curtain Bundle should there be a collision and the Horizontal beams get knocked out the door guides.

2.1.6 Lifting System: Direct Drive parallel shaft mounted Gear-motor with brake is used. Gear-motors are located inside the head member. Motor size is determined by door size and required operating speed. Single / Dual motor operators are located inside the Head Member.

2.1.7A Over Travel Switch: An Over Travel Limit Switch monitors the door upward travel and will cut the power to the drive unit should the door over travel. There will be one over travel switch per motor.



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2.1.8 Bottom Beam: The bottom horizontal beam will be the same size and material as all other horizontal beams. A U-shaped EPDM rubber seal shall be provided to form a tight seal between the bottom of the door and the grade surface, even on uneven surfaces. The door bottom beam shall include an extrusion for attachment of a reversing safety edge.

2.1.9 Reversing Edge: An optional Reversing Edge is available on all doors. All Doors are shipped with maintained contact close push button operation. The bottom of the door will be equipped with a switch on the bottom door edge to automatically stop the door should it contact any obstruction when traveling in the down direction.

2.1.10 Weather Seals: The vertical sides of the door panel will be sealed by the curtain material overlapping the door guides. The Interior and Exterior sides of the Door Panel will overlap the door guides. The weather seal surface will be 1- 2" wide by the door height.

The bottom of the door will seal via a "U" shaped EPDM Rubber Seal. The top of the door is to be sealed between the head member and the building wall material.

2.1.11A Control Panel: The door manufacturer shall supply a control panel to control door operation. The control panel shall contain interlocks to preclude personnel injury, including a Maintenance mode manual selector switch located at the junction box in the head member. The maintenance switch will not allow the door to operate should the Open or Close push buttons or sensors be activated. The maintenance switch can be turned off whenever the motor is manually rotated. The panel enclosure shall be NEMA 4 rated. Internal wiring shall be UL listed. Panels shall include Open, Close and Stop push button controls on the panel face, cycle counter, lockable fused rotary disconnect, 24-VDC power supply, terminal strip for field wiring termination, motor over-loads, reversing contactors.

2.1.11B Control Panel: The control panel will utilize a PLC (Programmable Logic Controller. Door positioning will be controlled by a limit switch assemble.

2.1.12 Protection Features: Fuses shall be utilized to protect the system from power line overcurrent and from secondary control voltage overcurrent. Additionally, a system should be provided to detect overcurrent to the motor.

2.1.13. Motor Cover: A metal weather cover for the motor cover is standard on all doors.

2.1.14 Additional Features: The door can be provided with the following optional features:

- a) Remote Open, Close, Stop station.
- b) Long distance Radio Controls
- c) Reversing Edge Cord Reel
- d) Photocell, Motion, Presence, Induction Loop, Laser Sensors
- e) Emergency power connection to the control panel
- f) Explosion proof environment components
- g) High Speed Operation
- h) Insulated Fabric Curtain
- i) Custom control panels

2.2 OPERATION:

2.2.1 Door operation: The vertical lifting fabric door shall guide up and down in the weather sealing vertical guides attached to the side frames. The door shall operate by lifting the bottom beam upwards, thereby stacking the intermediate beams one on top of the other, with the fabric panel folding into pleats. The fabric panel shall go over the top beam, covering both sides of the door, and shall be attached to the intermediate beams via batten strips with mechanical fastener. When the door is fully closed, the intermediate beams shall hang between the two fabric door panels thus pulling the fabric tight. The tension created in the fabric panels shall stabilize the intermediate beams. When the door is fully closed the lifting belts will limit how much the fabric can blow in between the horizontal beams.



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2.2.2 Electrical Operation: The door will travel to fully open positions and shall stop traveling via the full open limit switch. In case of overtravel, a secondary limit switch shall stop the door to prevent damage. The over travel limit switch shall be activated by the uppermost traveling intermediate beam. The drive unit shall be stopped by the Closed Limit Switch when the door is fully closed. The door operation shall be controlled by three pushbuttons marked "Open", "Close", and "Stop". The door manufacturer shall provide a NEMA approved enclosure which is factory wired and equipped with instantaneous overload relay.

PART 3: EXECUTION

3.1 INSTALLATION

3.1.1 Building Power: If permanent electrical power is not available when the door is being installed, the General Contractor shall make provision for and obtain a temporary source of electrical power to allow the door installer to install, test, and adjust the door under power.

3.1.2 Assembly: Assemble and install the doors and accessories in accordance with the manufacturer's recommendations and installation manual. Secure Side Frames to walls plum, level, and in line. Anchor Side Frames at spacing indicated on installation drawings. The Installer is to provide any additional support as necessary for attachment of Side Frames to the building. There should be a support brace wherever there is a horizontal beam going up to the height of the door. The Head Member should be attached to the building at several locations going across the width of the door opening.

3.1.3 Cleaning: Clean doors after erection on both interior and exterior. Touch up prime painted Side Frames where welding or grinding has occurred. All Finish Painting is by others.

3.1.4 Testing: Upon completion of installation, including work by other trades, lubricate, adjust, and test doors to verify operation in accordance with manufacturer's product data sheet. Complete signed installation form and send it to MAXDOOR.

END OF SECTION