

International Door, Inc.

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VERTICAL LIFT FIRE/BLAST DOORS

Section 08364-Vertical Lift Fire/Blast Doors

Part 1-General

1.1 Related Document:

Drawing and general provisions of contract, including general and supplementary conditions and division 1 specification section, apply to this section.

1.2 Work Included:

A. Provide all labor, equipment, materials and services required to execute and complete all items of work in connection with Furnishing and Installing the Vertical Lift Fire/Blast Doors described herein. All work shall be in accordance with the specifications and drawings.

B. Related Sections include the following:

1. Division 9 Section "Painting" for field-applied paint finish.
2. Division 16 Section "Conductors and Cables" for electrical service and connections for powered operators and accessories.
3. Division 16 Section "Disconnect Switches and Circuit Breakers" for disconnect switches and circuit breakers for powered operators.

1.3 Definitions

Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

1.4 Guarantee

Provide to the Owner a written guarantee, warranting the doors against any defects or materials and/or workmanship for the new door for a period of 1 year. With proper maintenance, commencing from the date of final acceptance of the project. Motors shall be guaranteed for a period of 1 year. State that all door and control work that becomes defective during the guarantee period shall be repaired promptly, to the requirements of these Specifications and at no cost to the Owner.

1.5 Quality Assurance

Installation work shall only be carried out by the unit manufacturer or by an approved installation specialist properly licensed or franchised for installation work.

Source Limitations: Obtain vertical lift fine/ blast doors through one source from a single manufacturer.

1. Obtain operators and controls from the vertical lift fine/blast door manufacturer.

1.6 Requirements of Regulatory Agencies

Equipment and installation shall comply with local, state and federal laws and with other mandatory requirements. Be responsible to insure an installation which is in compliance with such laws and regulations and all changes or alterations required by the authorized inspector or the authority having jurisdiction to be made without increase of subcontract price. Systems shall bear labeling for the special purpose type fire door equipment from the following standards;

1. Underwriters Laboratory Ref 0230-GSXZ.
2. NFPA Standard #80.

1.7 Product Delivery, Storage and Handling

- A. Deliver materials in sequence to meet the installation schedule and arrange ahead for off-the-ground, covered storage locations. Only materials scheduled to be erected within 24 hours may be stored on site. Other materials will have to be stored off site.
- B. Handle components with care. Protect against damage, dirt, disfigurement and weather.
- C. Protect other work resulting from work of this Section. Replace work, which cannot be satisfactorily repaired or restored at no additional cost to the Owner.

1.8 Submittals

- A. Submit detailed shop drawings of all work, and list the location in the building for each door. Clearly show and describe in detail, detailed door assemblies, and adjacent construction, including elevations, sections, and details of door, track, hardware, and operating components, dimensions, finishes and relationship of door, frames, track, hardware and operating components to adjacent construction.
- B. Submit printed operation instructions and maintenance data for the doors as follows:
 1. Wiring diagrams: "as built" straight line wiring and schematic diagrams showing electrical connections and control circuitry.
 2. Instructions showing operation.
 3. Lubrication chart indicating lubrication points and type of lubricant recommended for equipment.

- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied finishes.

Part 2-Products

2.1 Manufacturers and Products

Vertical lift blast doors shall be Class A (3 hour rated) manually controlled electrically operated two leaf type as manufactured by International Door, Inc. 8001 Ronda Drive, Canton, MI 48187 (734) 459-3000 or OWNER approved equal.

- A. Model # 200VLFD-DSI-S-3H
- B. The steel vertical lift weight counterbalanced fire/blast doors shall be for the protection of openings not exceeding 12 ft. in width and 10 ft. in height when installed in masonry openings.

The oversize certificate of inspection is authorized on *steel vertical lift weight counterbalanced doors and frames for masonry openings exceeding 12 ft. but not 15 ft. in width, and exceeding 10 ft. 0 in. but not 12.5 ft. 0 in. in height.

2.2 Door Design

Door shall be reinforced horizontally to withstand blast pressures of 100 psf with the deflection limited to the span divided by 120.

- A. Door and Counterweight guides shall be self-supporting.
- B. Door hardware shall be heavy duty, industrial type. Door guides and supports shall be designed to withstand 100 psf blast loads.
- C. Jamb guides, tracks, brackets, safety devices and all other hardware necessary for proper operation shall be as recommended by the manufacturer for a secure type installation.
- D. Door labels shall be classified with a maximum temperature rise of 250 degrees F in 30 minutes. When doors are installed on only one face of the wall, heat responsive (fusible links) units shall be provided and located on each side of the wall and so interconnected that the actuation of any one of them will permit the door to close when in the hold open position.
- E. This Contractor shall furnish and install metal through-wall sleeves for above device.
- F. Emergency release for manual operation shall be provided by Contractor in case of power failure.

2.3 Door Material and Construction

- A. Vertical lift blast door assembly shall be manufactured in accordance with manufacturer's standard practice, approved shop drawings and with the previously cited design criteria. Door shall be fully insulated with nominal 1 ½# density mineral wool insulation, full thickness of panel. Door panels shall be faced on the interior side With minimum 12 gauge steel to withstand 100 psf blast pressure, and exterior with 14 gauge steel.
- B. Stiles and rails shall be of structural steel sections, not smaller than three inch channels, with all joints welded and ground smooth. Bracing shall consist of horizontal and vertical structural sections.
- C. Equipment:
 - 1. Vertical Lift Fire/Blast Door guides and counterweight box shall be fabricated from structural steel shapes or plates bolted or welded together to give ample strength at their connections in performing their proper functions. Counterweights shall be guided by UHMW for full travel of height. Access to the counter weight box shall be furnished by removable # 14 GA HRS flat sheet covers up to 8'-0" high.
 - 2. Provisions shall be made on the leaves for application of any attached hardware.
 - 3. Door leaves shall be suspended on plow steel wire rope from machined steel sheaves and lifting drums to counterweights located at one side of the opening.
 - 4. Sheaves, rollers and drums shall have anti-friction sealed bearings.
 - 5. Wire rope shall have the capacity to sustain the dead weight of the door with an 8364 Allowance of 25 percent of impact all with a minimum safety factor of 10.
- D. Flexible, fire resistant weather seals are provided at top, meeting rails, bottom and Sides. Seals are secured with bolts and continuous steel retainers for easy replacement. Weather strip material shall withstand a melting temperature of 3000° F. Door bottom weather seal shall be a safety type as specified under "Reversing Fail Safe Safety Edge".

2.4 Finishes General

All exposed and unexposed surfaces of door and door hardware, except mechanical parts not usually painted shall be shop painted. Shop painting shall consist of one coat of gray metallic primer.

2.5 Electric Door Operators

General: Provide electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operational life specified with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations, control devices, integral gearing for locking door, sheaves, racks, levers, cables, brakes and accessories required for proper operation.

- A. Door manufacturer shall furnish and install electric operator. Operator shall be of heavy duty type furnished by door manufacturer. Operator shall include an adjustable torque limiting friction clutch.
 1. Door operator shall include foot mounted, standard frame, totally enclosed Electric motor driving a separate caliper disc brake, and emergency hand chain mechanism with electric interlock.
 - a. Door operator shall be factory wired to a terminal strip in a NEMA 12 enclosure.
 - b. Limit switches shall be rated NEMA 4, 6P & 13 and shall be plug-in type when Located in general purpose, non-hazardous areas and shall be rated NEMA 7 or intrinsically safe construction in hazardous areas.
 - c. Provide guard at the “V” belt between the motor and gear reducer assembly.
 - d. Fusible link actuated, self closing mechanism shall be included.
 - e. Electric operators shall be designed and installed so that the door can be Operated by the door with smooth acceleration and deceleration at a rate of $\frac{3}{4}$ to one foot per second.
 - f. The door control panel /safety disconnect switch shall be furnished in a NEMA 12 enclosure when located in the general purpose, non-hazardous area or shall be furnished in a NEMA 7 rated enclosure when mounted in the hazardous areas.
 - g. A push-button control station in a NEMA 7 rated enclosure shall be furnished on both sides of the door.
 - h. Electric power required for standard operators is 480 volt, 3 phase, 3 wire, 60 Hertz.
 - i. An intrinsically safe safety edge shall be included on the leading edge of the Bottom leaf to stop the downward travel of the door upon contact with an Obstruction. Operation of the safety edge shall cause a reversal of the door Travel to the full open position. Failure of the safety edge or its components Shall prevent closing operation.
 - j. Motor Speed: 1800 rpm unless otherwise indicated
 - k. Explosion Proof Motors: For Class 1, Division 1, and Group D installation in Hazardous locations.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following.
 1. Lincoln
 2. Marathon
 3. Reliance
 4. US Motor

2.6 Reversing Fail Safe Safety Edge

- A. Door manufacturer shall provide and install a rubber-encased, reverse action safety mechanism on the electrically-operated vertical lift fire/blast doors. The system is continuously energized and operates through the electrical system to stop the downward travel of the door on contact with an obstruction, providing an instantaneous reversal of the door travel to the full open position. Failure of any component prevents closing of door. A multi-conductor cord from an electrical junction box on the bottom door leaf is provided for the safety edge. The safety edge system shall be catalog # IDI-FSSE-2K as manufactured by International Door, Inc.

2.7 Emergency Manual Operation

A. Provide and install devices and make provisions for emergency manual operation in accordance with the following: emergency chain operation, including plated chain, Reduction unit, sheaves, etc., required to provide complete operation from side of doors to suit conditions. This device shall be so arranged that when set for manual operation the brake is automatically released and control circuit is broken, making it impossible to operate the doors electrically until the device is set for motor operation.

B. Chain gear operators shall be approved type, designed for easy uniform effort. Plated chain shall be installed within easy reach of floor.

C. operators shall be so designed that the electric motor may be removed without affecting manual operation of the door by means of the chain operator.

D Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.

Part 3- Execution

3.1 Installation

A. Vertical lift blast doors, including electric operators, control devices, conduit and wiring shall be installed by or the installation shall be supervised by the manufacturer's authorized representative in openings completely prepared by others and shall be done in a first-class manner with all work plumb, proper alignment and in accordance with approved shop drawings and manufacturer's latest printed instructions.

B. Electrical installation shall be in strict accordance with the requirements of the NEC state and local codes and the OWNER'S specifications.

- C. The design for the application and installation of all intrinsically safe control equipment must be reviewed and certified by the OWNER before installation. The contractor will not be allowed to install intrinsically safe equipment unless approved shop drawings (wiring diagrams, installation instructions, etc. indicating the specific connections and details) are marked with the OWNERS intrinsic safety certification.
- D. OWNER will provide a 480V, 3 phase, 3 wire branch circuit wired to a connection point above the proposed operator to power the door.
- E. Mounting of operator and hardware to structural steel frames shall be part of work of this Section with the use of case hardened machine bolts tapped into steel jambs. Bolting to masonry construction shall be by through bolts or bolts embedded solidly in concrete. Machine bolts for through bolting on doors shall be case hardened in accordance with UL requirements.
- F. Upon completion of installation, doors shall be adjusted for ease of operation and left free from imperfections.
- G. Finish painting is specified in Section 09900 and is not a part of this Section.
- H. Koil Kords or S.O. Cords: The Fail Safe Safety Edge shall be wired with a 3 conductor koil kords or 3 conductor S.O. cords. Koil Kord or S.O. Cords shall be furnished by door manufacturer.
- I. Fully synchronize doors, with the hardware and cables designed so that the door sections move simultaneously, the upper section traveling at a fraction of the speed of the lower sections so tat they reach the open or closed position at the same time.

3.2 Marking

- A. Each steel vertical lift fire/blast door assembly complying with this description is eligible to bear the Underwriters Laboratories Inc. Classification Mark as indicated below.

Special Purpose Type Fire Door
Rating 3 Hour
(Label Code 23-1)

- B. The Classification Mark shall be located on the edge of the door face near the lower edge of the top panel or upper edge of the bottom panel.
- C. The numbers of the temperature rise (if specified), hourly rating, and letter designation shall be stamped on the Classification Mark Label by the manufacturer in numerals and letters clear and legible metal labels and preprinted Mylar labels.
- D. The manufacturer shall provide, either on the Classification Mark containing the above information, or on a label of similar material, the Classified Company's name or "R15836".
- E. Metal labels may be fastened by using drive screws, or by metal pop rivets. Mylar labels may be also used.

3.3 Adjusting

- A. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Any repairs that required an account of faulty materials, workmanship, design or door construction shall be made at no additional charge to the owner.

3.4 Demonstration

- A. Startup Services: Engage a factory-authorized service representative to perform startup services and to train Owner's maintenance personnel as specified below:
 - 1. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance and procedures for testing and resetting release devices.
 - 2. Review data in the maintenance manuals. Refer to Division I Section "Contract Closeout"
 - 3. Schedule training with Owner with at least 7 days advance notice.

END OF SECTION 08364

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