

**SECTION 08 33 00**  
**VERTICAL ACTIONG FIRE & SMOKE RATED DOORS WITH INTEGRAL EGRESS DOORS**

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**PART 1 GENERAL**

**1.01 GENERAL REQUIREMENTS**

- A. Provide all materials, labor, equipment and services necessary to furnish, deliver and install all work under this section as shown on the contract documents, specified herein, and as specified by the job conditions.

**1.02 DESCRIPTION**

- A. Related work specified elsewhere:
  - 1. Metal Fabrication. Section 05 50 00
  - 2. Rough Carpentry. Section 06 10 00
  - 3. Access Panels & Doors: Section 08 31 00
  - 4. Painting: Section 09 91 00
  - 5. Electrical: Division 26

**1.03 SUBMITTALS**

- A. Procedures: Furnish submittals in accordance with the general requirements specified.
- B. Shop Drawing: Furnish shop drawings for architect's approval. Include elevations, sections, and details indicating dimensions, materials, finishes, conditions for anchorage and support of each door.
- C. Certifications:
  - 1. Submit manufacturer's Underwriters Laboratories, Intertek or Factory Mutual laboratory testing listing report verifying product compliance in accordance with the required fire and smoke ratings.
  - 2. Submit manufacturer's Code Compliance Research Report published by an independent third-party testing agency that is certified by the International Accreditation Service confirming compliance of the fire door assembly in accordance with the International Building Code.
  - 3. Provide assemblies that have been tested, certified and labeled for a minimum 3-hour rating.
- D. Product Literature: Submit manufacturer's technical literature describing the product to be used under this section.
- E. Maintenance and Operating Manuals: Furnish complete manuals describing the materials, devices and procedures to be followed in operating and maintaining all doors under this section. Include manufacturer's brochures and parts lists describing the actual materials used in the product.

**1.04 QUALITY ASSURANCE**

- A. Fire & Smoke Rated Assemblies: Provide all doors with fire and smoke resistance rating required to comply with governing regulations which are inspected, tested, listed and labeled by Underwriters Laboratories, Intertek or Factory Mutual and complying with NFPA 80 for class of opening. Provide units tested in accordance with the requirements of UL 10B, UL 1784, NFPA 252, ASTM E-152. Provide testing laboratory label permanently fastened to each fire and smoke door assembly.
- B. Regulatory Requirements:
  - 1. Comply with applicable requirements of the laws, codes, ordinances and regulations of federal, state and municipal authorities having jurisdiction.
  - 2. Listed under a certified Code Compliance Research Report in accordance with the applicable sections of the International Building Code.
- C. Testing: Provide documentation from a certified testing agency that the fire door's self-closing governor mechanism and fire door operator have been tested for a minimum of 50,000 cycles and 500 self

**SECTION 08 33 00**  
**VERTICAL ACTIONG FIRE & SMOKE RATED DOORS WITH INTEGRAL EGRESS DOORS**

---

closing trip tests.

- D. Manufacturer Requirements: Door manufacturer shall have been in the business of and have experience in manufacturing the type of product covered under this specification section as well as giving credible service for a minimum of five (5) years. Provide list of at least ten (10) completed projects which include the products covered under this section.

**1.05 DELIVERY, STORAGE AND HANDLING**

- A. General: Deliver and store materials in manufacturer's original packaging, labeled to show name, brand and type. Store materials in a protected dry location off the ground in accordance with manufacturer's instructions.

**1.06 WARRANTY**

- A. Door Warranty: Provide Two (2) Year Warranty signed by the manufacturer and installer agreeing to repair or replace work which has failed as a result of defects in materials or workmanship. Upon notification within the warranty period, such defects shall be repaired at no cost to the owner.

**PART 2 PRODUCTS**

**2.01 VERTICAL ACTING FIRE & SMOKE RATED DOORS WITH INTEGRAL EGRESS DOORS**

- A. Manufacturer: Vertical acting fire and smoke rated doors with integral egress doors shall be the Safescape® model T5000-G as manufactured by McKEON.

**2.02 MATERIALS**

- A. Curtain: Shall be assembled of G90 galvanized steel interlocking slats. Slat shall have endlocks locking each end of alternate slats to act as a wearing surface and maintain slat alignment. Curtain shall be 20 gauge minimum or gauge required by UL, WH or FM whichever is greater.
  - 1. Slats: Shall be of a cross section not less than 3" wide by 7/8" deep.
- B. Swinging Egress Doors: Incorporated within the curtain shall be swinging type steel doors in quantities as indicated in the contract drawings designed and built as an integral part of the fire door's assembly.
  - 1. Door Frames: Shall be an all-steel unit type ASTM A366 hot rolled steel, 14 gauge with the same labeled fire resistance rating as specified for door.
  - 2. Door Assemblies: Complete with doors, hinges, and locking channel mechanisms. 20 gauge stretcher leveled, electro galvanized and bonderized steel faces.
  - 3. Hardware:
    - a. Fire Exit Devices: Flush mounted integral type fire exit devices on one face and with pull handles on opposite face of the swinging doors.
    - b. Closers: Shall be concealed type.
- C. Guides: Each guide assembly shall be fabricated of a minimum 4" x 4" steel support angle or tube, a 2" x 3" inner guide angle and a 3" x 3" outer guide angle. Support tubes shall be constructed with a slip joint at the top to provide for thermal expansion and guide angles shall be provided with slotted holes to allow for thermal expansion.
  - 1. Provide internal, fully concealed UL Classified smoke seals located within each guide assembly. Externally mounted smoke seals shall not be acceptable.
- D. Mounting Brackets: Fabricated of hot rolled 3/16" steel plate minimum, brackets shall be provided to house ends of the counterbalance barrel assembly.

**SECTION 08 33 00**  
**VERTICAL ACTIONG FIRE & SMOKE RATED DOORS WITH INTEGRAL EGRESS DOORS**

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- E. Hood: Shall be provided to entirely enclose curtain and counterbalance barrel assembly. Hood shall be fabricated 22 gauge G90 galvanized steel and designed to match brackets. Top and bottom shall be bent and reinforced for stiffness.
  - 1. Provide UL Classified lintel smoke seals.
- F. Counterbalance Assembly: Door shall be counterbalanced by means of adjustable steel helical torsion springs attached to shaft enclosed in pipe with required mounting blocks or rings for attachment of curtain. Grease sealed bearings or self-lubricating graphite bearings shall be attached to the spring barrel which shall be fabricated of hot formed structural quality carbon steel seamless pipe.
- G. Electric Motor Operator: Fire door shall be provided with a compact power unit designed and built by the door manufacturer. Operator shall be equipped with an adjustable screw-type limit switch to break the circuit at termination of travel. High efficiency planetary gearing running in an oil bath, shall be furnished together with a centrifugal governor, magnetic operated brake and a fail-safe magnetic release device, completely housed to protect against damage, dust and moisture. An efficient overload protection device, which will break the power circuit and protect against damage to the motor windings shall be integral with the unit. Operator is to be housed in a NEMA type 1 enclosure.
  - 1. Motor: Shall be intermediate duty, thermally protected, ball bearing type with a class A or better insulation. Horsepower of motor is to be 1/2hp minimum or of manufacturer's recommended size, which ever is greater.
  - 2. Starter: Shall be size "0" magnetic reversing starter, across the line type with mechanical and electrical interlocks, with 10 amp continuous rating and 24 volt control circuit.
  - 3. Reducer: Planetary gear type, 80% efficiency minimum.
  - 4. Brake: Magnetically activated, integral within the operator's housing.
  - 5. Control Station: Provide flush mount key switch control station marked open, close and stop.
- H. Self-Closing Mechanism: The fire door is to be designed with a centrifugal governor as an integral part of the operator's construction. The automatic release mechanism shall be activated by a fusible link, smoke detector or fire alarm. When activated the door is released and begins to close due to gravitational force. The speed of the door is governed by a centrifugal governor, designed to match the normal operating speed of the door, at a rate of not greater than 9" per second or less than 6" per second.
- I. Magnetic Release with 10 Second Time Delay: A fail-safe magnetic release device shall be built into the operator as an integral part of the release mechanism. When power is interrupted to the release mechanism by the smoke detector or fire alarm, the door shall begin to self-close. In the event of power failure the time delay shall prevent the fire door from closing for a period of 10 seconds. Once the 10 seconds have lapsed, the fire door shall self-close. Once power has been restored to the release mechanism the automatic reset time delay as well as the fire door shall automatically reset themselves.
- J. Obstruction Sensing Device: Provide photo electric sensing device to prevent the fire door from operating if an obstruction is located in the fire door's traveling path. In the event that the sensing device determines that there is an obstruction in the fire door's traveling path during the normal operation, the fire door shall remain in its current position. In the event the sensing device determines that an obstruction is located in the fire door's traveling path during the self-closing operation, the fire door shall begin to close and come to rest on the obstruction. Once the obstruction has been removed the fire door shall continue to the fully closed position.
- K. Easy Trip Test Feature: The fire door shall be designed so that it may be trip tested simply by cutting power to the operator. By turning the power switch off, the fire door shall self-close. Once the fire door has satisfactorily closed, it shall be reset simply by turning the power back on. No ladders or tools shall be needed to reset the fire door or the time delay unit.

**SECTION 08 33 00**  
**VERTICAL ACTIONG FIRE & SMOKE RATED DOORS WITH INTEGRAL EGRESS DOORS**

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- L. Finish: After completion of fabrication, clean all metal surfaces to remove dirt and chemically treat to provide for paint adhesion. Curtain assembly is to receive a prime coat finish of .2 mils of epoxy primer and .8 mils of polyester paint in a McKEON Sterling Gray finish.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Examine surfaces and field conditions to which this work is to be performed and notify architect if conditions of surfaces exist which are detrimental to proper installation and timely completion of work.
- B. Verify all dimensions taken at job site affecting the work. Notify the architect in any instance where dimensions vary.
- C. Coordinate and schedule work under this section with work of other sections so as not to delay job progress.

**3.02 INSTALLATION**

- A. Perform installation using only factory approved and certified representatives of the door manufacturer.
- B. Install door assemblies at locations shown in perfect alignment and elevation, plumb, level, straight and true.
- C. Adjust door installation to provide uniform clearances and smooth non-binding operation.
- D. Install wiring in accordance with applicable local codes and the National Electrical Code Standard. Materials shall be UL listed.
- E. Test door closing sequence when activated by the building's fire alarm system. Reset door after successful test.

**3.03 PROTECTION AND CLEANING**

- A. Protect installed work using adequate and suitable means during and after installation until accepted by owner.
- B. Remove, repair or replace materials which have been damaged in any way.
- C. Clean surfaces of grime and dirt using acceptable and recommended means and methods.