

**SECTION 08 33 00**  
**ACOUSTICAL FIRE & SMOKE RATED 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 (UL), Warnock Hersey (WH) or Factory Mutual Research (FM) laboratory test report verifying product compliance in accordance with the required fire and smoke ratings.
  - 2. Provide certification from an accredited acoustical testing laboratory of product compliance noting a minimum 34 STC rating. Assembly shall have been tested in accordance with Laboratory Sound Transmission Loss (ASTM E-90) and STC determination (ASTM E-413).
- 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 UL, WH or FM 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: Comply with applicable requirements of the laws, codes, ordinances and regulations of federal, state and municipal authorities having jurisdiction.
- 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 closing trip tests.
- D. Manufacturer Requirements: Door manufacturer shall have been in the business of and have

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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: Furnish one (1) year written 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 ACOUSTICAL FIRE & SMOKE RATED DOORS**

- A. Manufacturer: Acoustical fire and smoke rated doors shall be Auto-Set System model FSFD-STC-M-G as manufactured by All Noise Control Door Company. Door shall be certified by an accredited acoustical testing laboratory and approved with a minimum 34 STC rating.

**2.02 MATERIALS**

- A. Curtain: Shall be assembled of interlocking galvanized steel slats. Slats shall have endlocks locking each end of all alternate slats to act as a wearing surface, and maintain slat alignment. Curtain shall be formed of 20 gauge front and back panel slats. The void of the curtain slats shall be filled with acoustical insulation and the front and back panel slats must have a positive interlock. Slats with snap-in back panels are not acceptable.
  - 1. Slats: Shall be of a cross section not less than 3" wide by 1 7/16" deep.
- B. Bottom Bar: Shall consist of two (2) angles, each not less than 2" x 2" x 1/8" steel formed to fit slats. Bottom bar shall be provided with continuous form fitted acoustical seals.
- C. Guides: Each guide assembly shall be fabricated of a minimum 3" x 3" steel support angle or tube, a 3" x 4" inner guide angle and a 4" x 4" 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. Acoustical Seals: Provide internal, fully concealed UL Classified acoustical smoke seals, located within each guide assembly, as required to maintain the minimum 34 STC rating. 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.
- E. Hood: Shall be provided to entirely enclose curtain and counterbalance barrel assembly. Hood shall be fabricated 22 gauge galvanized steel and designed to match brackets. Top and bottom shall be bent and reinforced for stiffness.
  - 1. Sound Baffle: Provide self adjusting internal sound baffle with integral lintel acoustical smoke seals as required to maintain the minimum 34 STC rating.
- F. Counterbalance Assembly: Fire 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

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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 1/3hp 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. Reducer: Planetary gear type, 80% efficiency minimum.
  3. Brake: Magnetically activated, integral within the operator's housing.
  4. 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 Safety Edge: The fire door shall be designed with an obstruction sensing safety edge. In the event that the safety edge meets an obstruction during the normal closing operation, the door shall stop, reverse and return to the open position. In the event the safety edge meets an obstruction during the self-closing operation, the door shall come to rest on the obstruction and 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 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 door or the time delay unit.
- L. True Test Panel: Fire doors shall be provided with a True Test panel. The test panel shall activate all the fire doors to close via gravity not power and shall be in accordance with NFPA Bulletin 80. Only one test panel shall be required to test all the fire doors on this project.
- M. 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 an All Noise Control Sterling Gray finish.

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**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.