

SECTION 08 33 00

FireGard™ ROLLING FIRE DOORS / SMOKESHIELD® FIRE DOORS

GENERAL NOTES TO SPECIFIER:

THIS SPECIFICATION SECTION HAS BEEN PREPARED TO ASSIST DESIGN PROFESSIONALS IN THE PREPARATION OF PROJECT OR OFFICE MASTER SPECIFICATIONS. IT FOLLOWS GUIDELINES ESTABLISHED BY THE CONSTRUCTION SPECIFICATIONS INSTITUTE, AND THEREFORE MAY BE USED WITH MOST MASTER SPECIFICATION SYSTEMS WITH MINOR EDITING.

EDIT CAREFULLY TO SUIT PROJECT REQUIREMENTS. MODIFY AS NECESSARY AND DELETE ITEMS THAT ARE NOT APPLICABLE. VERIFY THAT REFERENCED SECTION NUMBERS AND TITLES ARE CORRECT. (NUMBERS AND TITLES REFERENCED ARE BASED ON MASTERFORMAT™, 2004 EDITION).

THIS SECTION ASSUMES THE PROJECT MANUAL WILL CONTAIN COMPLETE DIVISION 01 DOCUMENTS INCLUDING SECTIONS 01 33 00–SUBMITTAL PROCEDURES, 01 62 00–PRODUCT OPTIONS, 01 25 13–PRODUCT SUBSTITUTION PROCEDURES, 01 66 00–PRODUCT STORAGE AND HANDLING REQUIREMENTS, 01 77 00–CLOSEOUT PROCEDURES, AND 01 78 00–CLOSEOUT SUBMITTALS. IF THE PROJECT MANUAL DOES NOT CONTAIN THESE SECTIONS, ADDITIONAL INFORMATION SHOULD BE INCLUDED UNDER THE APPROPRIATE ARTICLES.

THIS IS AN OPEN PROPRIETARY SPECIFICATION ALLOWING USERS THE OPTION OF APPROVING OTHER MANUFACTURERS WHICH COMPLY WITH THE CRITERIA SPECIFIED HEREIN.

NOTES TO THE SPECIFIER ARE CONTAINED IN BOXES AND SHOULD BE DELETED FROM FINAL COPY.

OPTIONAL ITEMS REQUIRING SELECTION BY THE SPECIFIER ARE ENCLOSED WITHIN BRACKETS, E.G.: [35] [40] [45]. IN CASES WHERE ONE OF THE OPTIONAL ITEMS IS A STANDARD FEATURE OF THE DOOR MODEL, IT IS LISTED IN THE FIRST POSITION. MAKE APPROPRIATE SELECTION AND DELETE OTHERS.

ITEMS REQUIRING ADDITIONAL INFORMATION ARE UNDERLINED, E.G.: _____.

OPTIONAL PARAGRAPHS ARE SEPARATED BY A REDLINED "OR," E.G.:

OR

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: [Manual] [and] [electric operated], automatic closing, overhead rolling [fire doors] [fire doors with SmokeShield® UL leakage rated assembly label].
- B. Related Sections:
 - 1. 05 50 00–Metal Fabrications. Door opening jamb and head members.
 - 2. 06 10 00–Rough Carpentry. Door opening jamb and head members.
 - 3. 08 31 00–Access Doors and Panels. Access doors.
 - 4. 08 70 00–Hardware. Padlocks. Masterkeyed cylinder.
 - 5. 09 91 00–Painting. Field painting.
 - 6. Division 26. Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, installation of control station and wiring, and connection to alarm systems.
- C. Products That May Be Supplied, But Are Not Installed Under This Section:
 - 1. Control Station.

2. Smoke/heat detectors.
3. Annunciator

INCLUDE APPROPRIATE LANGUAGE BELOW, INCLUDING A REFERENCE TO SECTION 01 23 00–ALTERNATES, IF ROLLING FIRE DOORS ARE INCLUDED IN ANY ALTERNATES, ADD SECTION 01 23 00 TO 1.1 B. DELETE IF NO ALTERNATES.

D. Alternates:

1.2 SYSTEM DESCRIPTION

A. Performance Requirements:

IF UL LABELED SMOKE PROTECTION IS NOT DESIRED OR REQUIRED, THEN DELETE LINE ITEM “2” BELOW.

1. Provide doors with Underwriters' Laboratories, Inc. label for the fire rating classification, [3 hr] [4 hr] [1 1/2 hr] [1 hr] [3/4 hr] [and Factory Mutual 3 hour fire rating label].
2. Provide doors with Underwriters' Laboratories, Inc. label for “Leakage Rated Assembly” or “S” label.
 - a. Comply with NFPA 105 air leakage requirements.
 - b. Pass UL test procedure 1784.

1.3 SUBMITTALS

- A. Reference Section 01 33 00–Submittal Procedures; submit the following items:
1. Product Data.
 2. Shop Drawings: Include special conditions not detailed in Product Data. Show interface with adjacent work.
 3. Quality Assurance/Control Submittals:
 - a. Provide proof of manufacturer ISO 9001:2008 registration.
 - b. Provide proof of manufacturer and installer qualifications - see 1.4 below.
 - c. Provide manufacturer's installation instructions.
 4. Closeout Submittals:
 - a. Operation and Maintenance Manual.
 - b. Certificate stating that installed materials comply with this specification.

1.4 QUALITY ASSURANCE

- A. Qualifications:
1. Manufacturer Qualifications: ISO 9001:2008 registered and a minimum of five years experience in producing fire [and smoke control] units of the type specified.
 2. Installer Qualifications: Manufacturer's approval.

1.5 DELIVERY STORAGE AND HANDLING

- A. Reference Section 01 66 00–Product Storage and Handling Requirements.
- B. Follow manufacturer's instructions.

1.6 WARRANTY

- A. Standard Warranty: Two years from date of shipment against defects in material and workmanship.
- B. Maintenance: Submit for owner's consideration and acceptance of a maintenance service agreement for installed products.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Manufacturer: Cornell Iron Works, Inc., Crestwood Industrial Park, Mountaintop, PA 18707. Telephone: (800) 233-8366, Fax: (800) 526-0841. Underwriters Laboratories, Inc. (UL), ISO 9001:2008 Registered.

INSERT NAME, ADDRESS, AND PHONE NUMBERS OF LOCAL DISTRIBUTOR BELOW.

- 1. Distributor:

USE MODEL ERD10 FOR LABELED FIRE PROTECTION WITHOUT SMOKE CONTROL.
USE MODEL ERD11 FOR LABELED SMOKE AND FIRE PROTECTION.

- B. Model: [ERD10] [ERD11]
- C. Substitutions: Reference Section 01 25 13 Product Substitution Procedures.

2.2 MATERIALS

FOR GALVANIZED STEEL DOORS, 22 GAUGE IS STANDARD FOR DOORS THROUGH 12'-0" (3.66 m) WIDE; 20 GAUGE IS STANDARD FOR DOORS OVER 12'-0" (3.66 m) WIDE THROUGH 21'-0" (6.40 m) WIDE; 18 GAUGE IS STANDARD FOR DOORS OVER 21'-0" (6.40 m) WIDE, BUT MAY BE SPECIFIED FOR ANY SIZE DOOR. STAINLESS STEEL DOORS ARE 20 GAUGE ONLY TO A MAXIMUM OF 21'-0" (6.40 m) WIDE.

- A. Curtain:
 - 1. Slats: No. 5F, flat faced [22] [20] [18] gauge, Grade 40 steel, ASTM A 653 galvanized steel zinc coating.
 - 2. Bottom Bar: Two 2x2x1/8 inch (50x50x3.2 mm) structural steel angles.
OR 1 & 2
 - 1. Slats: No. 5F, 20 gauge AISI type 304 stainless steel.
 - 2. Bottom Bar: Two 2x2x1/8 inch (50x50x3.2 mm) AISI 300 series stainless steel angles.
 - 3. Fabricate interlocking continuous slat sections with high strength steel endlocks secured with two 1/4" (6.35 mm) rivets per UL requirements.
 - 4. Slat Finish:
 - a. GalvaNex™ Coating System to include an ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation of a chemical bonding,

[light gray] [tan] [white] baked-on polyester base coat and a [light gray] [tan] [white] baked-on polyester finish coat. The scientific organic material composition and chemical bonding process of GalvaNex™ produces a superior finish against corrosion and abrasion. GalvaNex™ components include a limited two year finish warranty.

OR

- a. GalvaNex™ Coating System and phosphate treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, minimum 32 colors] [custom color as selected by Architect]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

OR

- a. Galvanized Steel: Phosphate and bonding treatment only, (no paint finish).

OR

- a. Stainless steel: No. 4 finish.

5. Bottom Bar Finish:

- a. Steel: Phosphate treatment followed by a [light gray] [tan] [white] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness.

OR

- a. Steel: Phosphate treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness.

OR

- a. Steel: ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.

OR

- a. Steel: Phosphate treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, minimum 32 colors] [custom color as selected by Architect]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

OR

- a. Stainless steel: No. 4 finish.

- B. Guides: Fabricate with minimum 3/16 inch (4.76 mm) [structural steel] [stainless steel angles]. Top of inner and outer guide angles to be flared outwards to form bellmouth for smooth entry of curtain into guides. Provide removable guide stoppers to prevent over travel of curtain and bottom bar.

IF STANDARD STRUCTURAL STEEL GUIDES ARE SELECTED ABOVE, ADD THE FOLLOWING SENTENCE BELOW REGARDING REMOVABLE TOP SECTION. DELETE IF SELECTING STAINLESS STEEL GUIDE ANGLES.

Top 16 ½” (419.10 mm) of coil side guide angles to be removable for ease of curtain installation and as needed for future curtain service.

1. Finish:

- a. Steel: Phosphate treatment followed a by [light gray] [tan] [white] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness.

OR

- a. Steel: Phosphate treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness.

OR

- a. Steel: ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.

OR

- a. Steel: Phosphate treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, minimum 32 colors] [custom color as selected by Architect]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

OR

MILL FINISH STRUCTURAL STAINLESS STEEL GUIDE ANGLES ARE USED FOR GUIDE COMPONENTS OVER 12'-0" (3.66 M) HIGH AND ON UNITS WIDER THAN 21'-0" (6.40 M).

- a. Stainless steel: [No. 4 finish] [Mill finish].

C. Counterbalance Shaft Assembly:

1. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width.
2. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque.

D. Brackets: Fabricate from minimum 1/4 inch (6.35 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures.

1. Finish:

- a. Steel: Phosphate treatment followed by a [light gray] [tan] [white] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness.

OR

- a. Phosphate treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness.

OR

- a. ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.

OR

- a. Phosphate treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, minimum 32 colors] [custom color as selected by Architect]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

E. Hood: [24 gauge galvanized steel] [24 gauge stainless steel] with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets as required to prevent excessive sag.

1. Finish:

- a. GalvaNex™ Coating System to include an ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation of a chemical bonding, [light gray] [tan] [white] baked-on polyester base coat and a [light gray] [tan] [white] baked-on polyester finish coat. The scientific organic material composition and chemical bonding process of GalvaNex™ produces a superior finish against corrosion and abrasion. GalvaNex™ components include a limited two year finish warranty.

OR

- a. GalvaNex™ Coating System and phosphate treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, minimum 32 colors] [custom color as selected by Architect]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

OR

- a. Stainless steel: No. 4 finish.

INCLUDE THE FOLLOWING SMOKE SEALS WHEN LABELED SMOKE PROTECTION IS REQUIRED - MODEL ERD11 UNITS. CHECK CODE FOR SMOKE DETECTOR AND ALARM SYSTEM TIE-IN REQUIREMENTS. DELETE ITEM "F" IF NOT REQUIRED.

F. Smoke Seals:

- 1. Bottom Bar: Two, replaceable, UL listed, nylon pile smoke seals.

OR

- 1. Bottom Bar, Motor Operated Doors: Combination smoke seal/sensing edge.
- 2. Guides and Head: Replaceable, UL listed, nylon pile smoke seals sealing against fascia side of curtain.

2.3 ACCESSORIES

FIRE DOORS ARE NORMALLY NOT LOCKED, BUT MAY BE IF DESIRED. MOST COMMON LOCKING METHODS ARE LISTED BELOW; CONSULT CORNELL ARCHITECTURAL DESIGN SERVICES (800) 233-8366 EXT. 551 FOR OTHER OPTIONS.

A. Locking:

- 1. Manual Chain Hoist: Padlockable chain keeper on guide.

OR

- 1. Padlockable slide bolt on [coil] [fascia] side bottom bar at each jamb extending into slots in guides. [Provide interlock switches on motor operated units.]

OR

- 1. Masterkeyable cylinder operable from [coil] [fascia] [both] side[s] of bottom bar. [Provide interlock switches on motor operated units.]

VISION PANELS ARE AVAILABLE ON UL RATED DOORS THROUGH 4 HOURS. SHOW NUMBER (6 MAXIMUM PER DOOR) AND PLACEMENT ON DRAWINGS. MINIMUM SPACING IS 5" (127 mm) APART, 12" (305 mm) IN FROM GUIDES.

- B. Vision Panels: 10x1-5/8x3/16 inch (254x41x4.76 mm) thick FireLite® oval glass panes set in metal frames and mechanically fastened to slat. Refer to drawings for number and placement.

INCLUDE F-BBU BATTERY BACK-UP SYSTEM TO M100 MODEL FS MOTOR OPERATORS TO ADD A FOUR HOUR TIME DELAY TO AUTO-CLOSING UPON POWER FAILURE. THIS SYSTEM DOES NOT PROVIDE FOR POWER OPENING OF THE UNIT. COORDINATE WITH SECTION 2.4-C.1.a FOR M100 FIREGARD™ MOTOR OPERATED SYSTEMS.

- C. Provide Model F-BBU Battery Back-Up System for M100-FS Motor Operator. Provides four hours of door open holding time in the event of a power failure. Can power local detectors and warning appliances. Allows for programming open/close obstruction cycling should the sensing edge encounter a stationary obstruction in the opening during AC power, alarm signal closing.
- D. [Photoelectric Smoke/Heat Detector] [Ionization Smoke Detector]: UL listed.

FIRE EMERGENCY ANNUNCIATORS ARE AVAILABLE FOR USE WITH A M100 SERIES FDCL MOTOR OPERATOR AND FIREGARD SERIES RELEASE DEVICES. HORN/STROBE AVAILABLE WITH FDCL OPERATOR AND ALL FIREGARD SERIES DEVICES; VOICE WARNING MODULE AVAILABLE WITH TYPE BV DEVICE ONLY. COORDINATE WITH SECTIONS 2.4-A & 2.4-C, DELETE IF NOT DESIRED.

- E. Fire Emergency Annunciator: [Provide ADA compliant horn/strobe] [Provide Voice Warning Module] fire emergency annunciator to give advanced warning that the fire door is about to close. Warning signal to activate upon alarm signal.

EXPOSED MOVING OPERATOR COMPONENTS LOWER THAN 8 FEET ABOVE FLOOR LEVEL THAT CREATE POSSIBLE PINCH POINTS ARE REQUIRED TO BE COVERED PER UL 325. SPECIFY AN OPERATOR COVER WHENEVER THIS FIELD CONDITION EXISTS.

- F. Operator [and Full Bracket Mechanism] Cover: Provide [24 gauge galvanized steel] [24 gauge stainless steel] sheet metal cover [to provide weather resistance] [to enclose exposed moving operating components] at coil area of unit. Finish to match door hood.

2.4 OPERATION

- A. M100 Series Motor Operated: Model FS, UL listed and FM approved, NEMA 1 enclosure rating, horsepower as recommended by manufacturer, [115v single] [230v single] [208/230v three] [460v three] phase service. Provide open drip-proof motor, removable without affecting setting of limit switches; UL listed thermal overload protection; solenoid brake; planetary reduction gearing and rotary limit switches; transformer with 24 v control secondary; and all integral electrical components prewired to terminal blocks.
 Automatic closure shall be activated by [a central smoke/fire alarm system] [a local smoke/fire detector]. Doors shall not require a releasing device for alarm signal activation.
 Doors shall maintain an average closing speed of not more than 9” (229 mm) per second during automatic closing. When automatic closure is activated, electric sensing edge and push button are inoperable.
 Doors shall be fail-safe and close upon power failure.
 Resetting of spring tension or mechanical dropouts shall not be required. Upon restoration of power and/or clearing of the alarm signal, doors shall immediately reset by opening with the push button.
 The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.

OR

- A. Manual M100 Chain Hoist: Provide combination chain / controlled closing system operator including endless steel chain, geared reduction unit, chain keeper and an electric wall mounted close control station. Integral to the unit is a releasing device for connection to a central alarm system or local smoke detectors and a governor to control automatic closing speed.
Automatic closure shall be activated by [a central smoke/fire alarm system] [a local smoke/fire detector].
Doors shall maintain an average closing speed of not more than 12" (305 mm) per second during automatic closing.
Resetting of spring tension or mechanical dropouts shall not be required.

OR

- A. Manual M100 Crank Hoist: Provide combination hand crank / controlled closing system operator including removable hand crank, geared reduction unit and an electric wall mounted close control station. Integral to the unit is a releasing device for connection to a central alarm system or local smoke detectors and a governor to control automatic closing speed.
Automatic closure shall be activated by [a central smoke/fire alarm system] [a local smoke/fire detector].
Doors shall maintain an average closing speed of not more than 12" (305 mm) per second during automatic closing.
Resetting of spring tension or mechanical dropouts shall not be required.

OR

- A. Manual Push-Up with Conventional Spring Release System: Provide lift handles on bottom bar and pole with hook.
Automatic closure shall be activated by fusible link [or a local smoke/fire detector by means of a fail-safe releasing device] [or a central smoke/fire alarm system by means of a fail-safe releasing device].
Doors shall maintain an average closing speed of not less than 6" (152 mm) nor more than 24" (610 mm) per second during automatic closing per NFPA 80.
Resetting of spring tension and mechanical dropouts by a trained door systems technician is required.

MOST COMMON CONTROL STATIONS FOR MOTORIZED FIRE DOORS ARE LISTED BELOW. CONSULT CORNELL ARCHITECTURAL DESIGN SERVICES (800) 233-8366 EXT. 551 FOR OTHER OPTIONS. DELETE IF MANUALLY OPERATED.

1. Control Station: Surface mounted, "Open/Close/Stop" push buttons; NEMA 1.

OR

1. Control Station: Flush mounted, "Open/Close/Stop" push buttons; NEMA 1B.

OR

1. Control Station: Surface mounted, "Open/Close" key switch with "Stop" push button; NEMA 1.

OR

1. Control Station: Flush mounted, "Open/Close" key switch with "Stop" push button; NEMA 1B.

PER UL325-2010, DOORS WITHOUT A CONNECTED AND PROPERLY FUNCTIONING PRIMARY ENTRAPMENT PROTECTION DEVICE WILL ONLY FUNCTION BY CONSTANT PRESSURE CLOSE OPERATION.

- SELECT A PRIMARY ENTRAPMENT PROTECTION DEVICE FROM 2.4-B-1 BELOW TO ENABLE MOMENTARY CONTACT CLOSE OPERATION, INCLUDING THE CONNECTION OF RADIO CONTROLS, INDUCTION LOOPS, TIMER TO CLOSE, ETC.
- COORDINATE A SENSING/ SMOKE SEAL EDGE WITH 2.2 F.

B. Entrapment Protection: Provide the following primary entrapment protection device to enable momentary contact close operation.

A STAND ALONE 2-WIRE E.L.R. ELECTRIC SENSING EDGE IS RECOMMENDED TO MEET THE UL325-2010 REQUIREMENT FOR ENTRAPMENT PROTECTION WHILE ALSO PROVIDING PROPERTY PROTECTION. A SENSING EDGE WILL DETECT OBJECTS PROJECTING THROUGH THE OPENING ABOVE 6" FROM THE FLOOR THAT PHOTO EYES MAY NOT DETECT.

1. Provide a 2-wire, E.L.R. electric sensing/smoke seal edge extending full width of door bottom bar. Contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Provide a [retracting safety cord and reel] [self-coiling cable] connection to control circuit.

OR

1. Provide NEMA 4X photo eye sensors consisting of a transmitter and receiver that are to be mounted within 6" (152.4 mm) of the floor, projecting an IR beam across the entire width of the door. Interruption of beam before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Electrical contractor to provide low voltage wiring from the transmitter and receiver to the door operator.

OR

1. Provide NEMA 1 photo eye sensors consisting of a transmitter and receiver that are to be mounted within 6" (152.4 mm) of the floor, projecting an IR beam across the entire width of the door. Interruption of beam before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Electrical contractor to provide low voltage wiring from the transmitter and receiver to the door operator.

OR

SELECT THE OPERATOR FUNCTION BELOW WHEN CONSTANT PRESSURE CLOSE OPERATION IS ACCEPTABLE. THE MOTOR CONTROL STATION(S) MUST BE MOUNTED WITHIN VISIBLE SIGHT OF THE ENTIRE DOOR OPENING AND PRESSURE MUST BE MAINTAINED ON "CLOSE" FOR THE DURATION OF EACH CLOSE CYCLE.

- B. Provide operator to function with constant pressure close operation to meet UL325-2010 listing standard requirements.

THE ITEM LISTED BELOW IS AN OPTIONAL SECONDARY ENTRAPMENT PROTECTION DEVICE, AND MAY BE USED IN CONJUNCTION WITH A SET OF PRIMARY ENTRAPMENT PROTECTION PHOTO EYES OR WITH CONSTANT PRESSURE CLOSE OPERATION. COORDINATE WITH 2.2 F; DELETE IF NOT DESIRED.

- C. Sensing/Smoke Seal Edge: Provide automatic reversing control by an automatic sensing switch within neoprene or rubber astragal extending full width of door bottom bar.
 - 1. Provide an electric sensing edge device. Contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Provide a wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator.
- D. Automatic Closing and Speed Governor Mechanism:

FOLLOWING OPTION IS FOR MOTOR OPERATED DOORS ONLY. ENTRAPMENT PROTECTION DEVICE (2.4 B.) IS REQUIRED.

- 1. M100 FireGard™ Motor Operated System:
 - a. Activation: [Central alarm system] [Local smoke and heat detectors] or [power outage] [power outage greater than 4 hours with use of F-BBU back up device].
 - b. Operation: Motor operator shall close door upon signal from [central alarm system] [local smoke and heat detectors] or power outage.
 - c. Closing Speed: Not more than 9 inches (229 mm) per second.
 - d. Reset Procedure: Operation of control station after alarm is cleared and/or power is restored; resetting of spring tension or mechanical dropouts shall not be required.

OR

- 1. M100 FireGard™ [Chain] [Crank] System:
 - a. Activation: Alarm signal or power outage in excess of 10 seconds.
 - b. Operation: Hand [chain] [crank] open/close or use of a wall mounted close control station. When automatic closing is activated, integral brake and [chain] [crank] operator shall disengage. Integral governor controls closing speed.
 - c. Average Closing Speed: Not more than 12 inches (305 mm) per second.
 - d. Reset Procedure: Resetting of spring tension or mechanical dropouts shall not be required. Simply open door by use of [chain] [crank] operator after alarm is cleared and/or power is restored.

OR

- 1. Fusible Link with FireGard™ AR-D Release Device – Manual Push-Up Operation:
 - a. Activation: [Central alarm system] [Local smoke and heat detectors] or power outage in excess of 10 seconds or melting of fusible link.
 - b. Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.
 - c. Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard AR-D or replace fusible link.

OR

- 1. Fusible Link with FireGard BB Release Device – Manual Push-Up Operation:
 - a. Activation: [Central alarm system] [Local smoke and heat detectors] or power outage in excess of 72 hours or melting of fusible link.
 - b. Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.
 - c. Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard BB or replace fusible link.

OR

- 1. Fusible Link with FireGard DC Release Device – Manual Push-Up Operation:

- a. Activation: [Central alarm system] [Local smoke and heat detectors], DC alarm system power outage or melting of fusible link.
- b. Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.
- c. Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard DC or replace fusible link.

OR

- 1. Fusible Link – Manual Push-Up Operation:
 - a. Activation: Melting of fusible link.
 - b. Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.
 - c. Reset Procedure: Reset spring tension and mechanical dropouts; replace fusible link.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Commencement of work by installer is acceptance of substrate.

3.2 INSTALLATION

- A. General: Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports.

INCLUDE NFPA 105 WHEN LABELED SMOKE PROTECTION IS REQUIRED - MODEL ERD11 UNITS.

- B. Comply with [NFPA 80] [NFPA80 and NFPA 105] and follow manufacturer's installation instructions.

3.3 ADJUSTING

- A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.4 FIELD QUALITY CONTROL

- A. Site Test: Test doors for normal operation and automatic closing. Coordinate with authorities having jurisdiction to witness test and sign Drop Test Form.

3.5 CLEANING

- A. Clean surfaces soiled by work as recommended by manufacturer.

B. Remove surplus materials and debris from the site.

3.6 DEMONSTRATION

A. Demonstrate proper operation, testing and reset procedures to Owner's Representative.

B. Instruct Owner's Representative in maintenance procedures.

END OF SECTION