

SECTION 08 33 00

COILING FIRE DOORS

ENTREMATIC

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 SPECIFIER **** are highlighted in red text and should be deleted from final copy.

Optional items requiring selection by the specifier are enclosed within brackets and highlighted, 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 and highlighted, e.g.: .

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: [Manual] [and] [electric operated], automatic closing, overhead rolling [fire doors] [fire doors with 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. Annunciator

1.2 SYSTEM DESCRIPTION

- A. **Performance Requirements:**
 - 1. Provide doors with Underwriters' Laboratories, Inc. label for the fire rating classification, [3 hr] [4 hr] [1 1/2 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

**** NOTE TO SPECIFIER **** If UL labeled smoke protection is not desired or required, then delete line item "2" below.

**** NOTE TO SPECIFIER **** Wind loaded doors are not required on interior applications. If wind load is not a requirement, delete the next statement below.

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- B. **Design Requirements:**
 - 1. **Wind Loading:**
 - a. Supply doors to withstand up to [] psf ([] Pa) design wind load
- 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 manufacturer and installer qualifications - see 1.4 below.
 - b. 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:**

**** NOTE TO SPECIFIER **** Select one of the following.

 - 1. Entrematic: 165 Carriage Court, Winston-Salem, NC 27105. ASD. Tel: (800) 503-3667. Fax: (336) 251-1851. Email: MarketingDept@amarr.com Website: www.amarr.com.
 - a. **Model:** 4100

Substitutions: Not permitted

2.2 PRODUCT INFO

**** NOTE TO SPECIFIER **** Use model Amarr 4200 for labeled fire protection without smoke control. Use model Amarr 4202 for labeled smoke and fire protection

- A. **Model:** [Amarr 4200] [Amarr 4202]

2.3 MATERIALS

**** NOTE TO SPECIFIER **** 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

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- a. **Galvanized Steel with Finish as Described Below:** No. 5F, minimum 18 gauge, Grade 40 steel, ASTM A 653 galvanized steel zinc coating
- a. **Stainless Steel:** No. 5F, 20 gauge AISI type 304 stainless steel

**** NOTE TO SPECIFIER **** If an insulated door is needed, use the insulated fire door specification.

2. **Finish:**

**** NOTE TO SPECIFIER **** Select one of the following.

- a. **GalvaNex™ Coating System (Stock Colors):**
 - 1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding baked-on base coat and [gray] [tan] [white] [brown] baked-on polyester enamel finish coat
- a. **SpectraShield® Coating System (Color Selected by Architect):**
 - 1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding, gray baked-on base coat and gray baked-on polyester finish coat
 - 2) Zirconium pre-treatment followed by baked-on polyester powder coat, with [color as selected by Architect from manufacturer's standard color range, over 180 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
- a. **Galvanized Steel (No Paint Finish):** Zirconium and bonding treatment only (no paint finish)
- a. **Stainless Steel:** #4 type 304 finish

**** NOTE TO SPECIFIER **** The powder coated graphic finish is not a surface application with film or laminate. (Max. width: 12 ft, no height limit).

a. **Graphics Door Image:**

- 1) **Powder Coated:** Flat face surface of door curtain slats to be powder coated with pattern or image baked onto the door components and continuing around edges and corners. Powder coated graphic process must utilize recyclable substrates, transfer medium and water-based inks, and emit zero or near net zero volatile organic compounds (VOC). Graphic image or pattern to be selected and electronically supplied by customer.

**** NOTE TO SPECIFIER **** For vinyl decal graphic, max. height is 10 ft.; no width limit.

- 1) **Vinyl Decal Graphics:** Flat face surface of door curtain slats to include factory applied [4] [2] -color process, 2 mil thick vinyl graphic image, 3M® or equal. Graphic image to be selected and electronically supplied by customer.

B. **Endlocks:**

Fabricate interlocking continuous slat sections with high strength steel endlocks secured with two ¼" (6.35 mm) rivets per UL requirements.

C. **Bottom Bar:**

**** NOTE TO SPECIFIER **** Select one of the following.

1. **Configuration:**

- a. **Structural Steel Angles:** 2 structural steel angles minimum 2"x2"x1/8" (50x50x3.2 mm)
- a. **Stainless Steel Angles:** 2 AISI 300 series stainless steel angles minimum 2"x2"x1/8" (50x50x3.2 mm)

2. **Finish:**

**** NOTE TO SPECIFIER **** Select one of the following.

- a. **Powder Coat (Stock Colors):** Zirconium treatment followed by a [gray] [tan] [white] [brown] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **Powder Coat (Color Selected by Architect):** Zirconium treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, over 180 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

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- a. **Corrosion Inhibitive:** Zirconium treatment followed by a corrosion inhibitive baked-on zinc enriched gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication
- a. **Stainless Steel:** #4 type 304 finish

D. **Guides:**

1. **Fabrication**

- a. 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. 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.

**** NOTE TO SPECIFIER **** 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.

2. **Finish:**

**** NOTE TO SPECIFIER **** Select one of the following.

- a. **Powder Coat (Stock Colors):** Zirconium treatment followed by a [gray] [tan] [white] [brown] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **Powder Coat (Color Selected by Architect):** Zirconium treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, over 180 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
- a. **Corrosion Inhibitive:** Zirconium treatment followed by a corrosion inhibitive baked-on zinc enriched gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication
- a. **Stainless Steel:** #4 type 304 finish

**** NOTE TO SPECIFIER **** 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).

E. **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.

F. **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

**** NOTE TO SPECIFIER **** Select one of the following.

1. **Finish:**

- a. **Powder Coat (Stock Colors):** Zirconium treatment followed by a [gray] [tan] [white] [brown] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **Powder Coat (Color Selected by Architect):** Zirconium treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, over 180 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

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- a. **Corrosion Inhibitive:** Zirconium treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication

G. **Hood:**

Minimum 24 gauge [galvanized steel] [stainless steel] with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets

**** NOTE TO SPECIFIER **** Select one of the following.

- a. **GalvaNex™ Coating System (Stock Colors):**
 - 1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding baked-on base coat and [gray] [tan] [white] [brown] baked-on polyester finish coat
- a. **SpectraShield® Coating System (Color Selected by Architect):**
 - 1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding, gray baked-on base coat and gray baked-on polyester finish coat
 - 2) Zirconium treatment followed by baked-on polyester powder coat, with [color as selected by Architect from manufacturer's standard color range, over 180 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
- a. **Stainless steel:** #4 type 304 finish

**** NOTE TO SPECIFIER **** Include the following smoke seals when labeled smoke protection is required - model Amarr 4202 units. Check code for smoke detector and alarm system tie-in requirements. Delete item below if not required.

H. **Combination Weather/Smoke Seals:**

- 1. **Bottom Bar:**
 - a. **Manually Operated Doors:** Two, replaceable, UL listed, nylon pile smoke seals
 - a. **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

2.4 OPERATION

**** NOTE TO SPECIFIER **** Model building codes typically require activation by detectors or by the fire alarm control panel. If so, select one of the following AlarmGard systems. In addition, the AlarmGard systems will provide a safe and controlled rate of descent, an internal failsafe release device, hands-free automatic reset, an integrated cycle counter and a selective auto-open feature.

A. **Motor Operation:**

- 1. **AlarmGard Advanced Fire Door Motor Operation:** UL, cUL listed NEMA 1 enclosure, horsepower as recommended by manufacturer, [115v single] [230v single] [208/230v three] [460v three] phase service. Provide a totally enclosed non ventilated motor, removable without affecting the setting of limit switches; thermal overload protection, planetary gear reduction, adjustable rotary limit switch mechanism and a transformer with 24v secondary output. All internal electrical components are to be prewired to terminal blocks.
 - a. Provide a comprehensively self functioning failsafe motor operated door assembly requiring no ancillary or externally mounted release devices, cables, chains, pulleys, reset handles or mechanisms
 - b. Provide an internal electrical failsafe release device that requires no additional wiring, external cables or mounting locations.
 - c. Provide an internal solenoid brake mechanism to hold the door at any position during normal door operation.
 - d. Provide logic for [1] [2] [3] fully monitored safety reversing devices such that the failure of any single monitored device will cause the motor operator to automatically revert to constant pressure to close.

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- e. Electrically activate door system automatic closure by [notification from central alarm system] [notification from local detectors] or [power outage] [power outage exceeding 6 hours with R-BBU battery backup system].
- f. Provide an automatic alarm closure selectable time delay of zero or ten seconds.
- g. Control automatic closure speed with an internal, totally enclosed, variable rate centrifugal governor without the use of electrical pulsation, constant rate viscosity, oscillation type or other exposed governing devices.
- h. Maintain automatic closure speed at not more than 9" (229 mm) per second.
- i. Enable safety edge function during alarm gravity closing while power is present for [0] [1] [3] cycle[s]. Enable door to rest upon obstruction following this sequence.
- j. Electrically reset internal failsafe release device and door operating system upon restoration of electrical power and upon clearing of the alarm signal without requiring human interaction.
- k. Provide selectable ability for the door system to automatically self-cycle to the fully open position following automatic reset without requiring human interaction.
- l. Provide an integral, non-resettable cycle counter.
- m. Ensure that manual resetting of spring tension, release devices, linkages or mechanical dropouts will not be required.
- n. Provide minimum #50 roller chain for drive connection from motor drive assembly to the door drive shaft.
- o. Install system only with manufacturer supplied or specified fasteners.
- p. Notify electrical contractor to mount control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the door system wiring instructions.
- q. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80 Section 5.

**** NOTE TO SPECIFIER **** Select the FireGard fire door motor operator system if the fire door system is intended to be activated by fusible link, is not used in areas of high human traffic, may or may not be electrically notified by a fire alarm control panel/ local detectors, and is desired to close at a safe and controlled rate of descent.

1. **FireGard™ Fire Door Motor Operation:** UL listed NEMA 1 enclosure, horsepower as recommended by manufacturer, [1 15v single] [230v single] [208/230v three] [460v three] phase service. Provide a totally enclosed non ventilated motor, removable without affecting the setting of limit switches; thermal overload protection, planetary gear reduction, adjustable rotary limit switch mechanism and a transformer with 24v secondary output. All internal electrical components are to be prewired to terminal blocks.
 - a. Provide an internal solenoid brake mechanism to hold the door at any position during normal door operation.
 - b. Equip operator with an emergency manual chain hoist assembly that provides emergency operation during non-alarm power failure.
 - c. Activate automatic closure by [separation of a fusible link] [activation of a failsafe release device] by [notification from central alarm system] [notification from local detectors] or [power outage] [power outage exceeding 6 hours with a battery backup system].
 - d. Delay automatic closure for no more than ten seconds when electrically notified.
 - e. Control automatic closure speed with a variable rate centrifugal governor without the use of electrical pulsation, oscillation type or constant rate viscosity governors.
 - f. Maintain automatic closure speed at an average of 12" (304mm) per second.
 - g. Ensure that electrical sensing edge and push button control station are inoperable during automatic closure.
 - h. Reset door system by reconnecting fusible links or by re-engaging failsafe release device [from floor level].
 - i. Provide minimum #50 roller chain for drive connection from operator output shaft to the door drive shaft.

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- j. Ensure that manual resetting of spring tension or mechanical dropouts will not be required.
- k. Install system only with manufacturer supplied or specified fasteners.
- l. Notify electrical contractor to mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the door system wiring instructions.
- m. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80 Section 5.

**** NOTE TO SPECIFIER ** Model building codes typically require activation by detectors or by the fire alarm control panel. If so, select one of the following AlarmGard systems. In addition, the AlarmGard systems will provide a safe and controlled rate of descent, an internal failsafe release device and hands-free automatic reset.**

A. Manual Operation:

1. **AlarmGard Advanced Manual Fire Door Operators:** Electrically activated, manually operated, 115 volt AC system with planetary gear reduction, a transformer with 24V secondary output and an internal failsafe release mechanism.
 - a. Door assembly to be manually operated by [chain hoist] [crank].
 - b. Provide an internal electrical failsafe release device that requires no additional wiring, external cables or mounting locations.
 - c. Electrically activate automatic closure by [notification from central alarm system] [notification from local detectors] or [power outage] [power outage exceeding 6 hours with R-BBU battery backup system].
 - d. Provide an internal solenoid brake mechanism to hold the door at any position during normal door operation.
 - e. Delay automatic closure after notification for no more than ten seconds.
 - f. Control automatic closure speed with an internal, totally enclosed, variable rate centrifugal governor without the use of electrical pulsation, constant rate viscosity, oscillation type or other exposed governing devices.
 - g. Maintain automatic closure speed at an average of 12" (304mm) per second.
 - h. Electrically reset internal failsafe release device and door operating system upon restoration of electrical power and upon clearing of the alarm signal without requiring human interaction.
 - i. Provide minimum #50 roller chain from operator output shaft to the door drive shaft.
 - j. Install system only with manufacturer supplied or specified fasteners.
 - k. Ensure that manual resetting of spring tension, release devices, linkages or mechanical dropouts will not be required.
 - l. Notify electrical contractor to supply and install the appropriate disconnect switch, all conduit and wiring per the door system wiring instructions.
 - m. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80 Section 5.

**** NOTE TO SPECIFIER ** Select the FireGard chain hoist or awning crank fire door manual operation system if the fire door system is intended to be activated by fusible link, is not used in areas of high human traffic, may or may not be electrically notified by a fire alarm control panel/ local detectors, and is desired to close at a safe and controlled rate of descent.**

1. **FireGard™ Series Manual [Chain] [Crank] Operation:** Thermally activated, manually operated system with planetary gear reduction and internal release mechanism.
 - a. Provide an internal brake mechanism to hold the door at any position during normal door operation.
 - b. Thermally activate automatic closure by melting of a fusible link.
 - c. Control automatic closure speed with an internal, totally enclosed, variable rate centrifugal governor without the use of electrical pulsation, non-variable rate viscosity, oscillation type or other governing devices.
 - d. Maintain automatic closure speed at an average of 12" (304mm) per second.
 - e. Reset door system by reconnecting fusible links or by re-engaging a failsafe release device [from floor level].
 - f. Provide minimum #50 roller chain from operator output shaft to the door drive shaft.
 - g. Install system only with manufacturer supplied or specified fasteners.

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- h. Ensure that manual resetting of spring tension or mechanical components will not be required.
- i. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80 Section 5.

**** NOTE TO SPECIFIER **** Select the FireGard chain hoist or awning crank fire door manual operation system if the fire door system is intended to be activated by fusible link, is not used in areas of high human traffic, may or may not be electrically notified by a fire alarm control panel/ local detectors, and is desired to close at a safe and controlled rate of descent.

1. **FireGard™ Series Manual [Chain] [Crank] Operation:** Thermally activated, manually operated system with planetary gear reduction and internal release mechanism.
 - a. Provide an internal brake mechanism to hold the door at any position during normal door operation.
 - b. Thermally activate automatic closure by melting of a fusible link.
 - c. Control automatic closure speed with an internal, totally enclosed, variable rate centrifugal governor without the use of electrical pulsation, non-variable rate viscosity, oscillation type or other governing devices.
 - d. Maintain automatic closure speed at an average of 12" (304mm) per second.
 - e. Reset door system by reconnecting fusible links or by re-engaging a failsafe release device [from floor level].
 - f. Provide minimum #50 roller chain from operator output shaft to the door drive shaft.
 - g. Install system only with manufacturer supplied or specified fasteners.
 - h. Ensure that manual resetting of spring tension or mechanical components will not be required.
 - i. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80 Section 5.

**** NOTE TO SPECIFIER **** The FireGard manual push-up operation system is a conventional tension release system that requires access to components on each the side of the opening and above the opening and door assembly for testing and resetting. Permanent hatch access must be allowed for future inspection, drop testing and re-setting.

1. **FireGard™ Series Manual Push-Up Operation:** Conventional spring tension release operating system.
 - a. Provide bottom bar lift handles and a pull-down pole with hook
 - b. Activate automatic closure by [melting of a fusible link] [activation of a failsafe release device] by [notification from central alarm system] [notification from local detectors] or [power outage] [power outage exceeding 6 hours with a battery backup system]
 - c. Maintain automatic closure speed at an average of 6" – 24" per second
 - d. Reset of spring tension, mechanical dropouts or release devices to be completed only by an approved and trained door systems technician
 - e. Notify electrical contractor to supply and install the appropriate disconnect switch, all conduit and wiring per the door system wiring instructions
 - f. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80, Section 5

**** NOTE TO SPECIFIER **** Most common control stations for motorized fire doors are listed below; ACE Commercial Experts at 866-366-4814 for other options. If motor operated, select one of the following. Delete sections B through C for manual push-up or crank /hoist operation.

B. Control Station:

1. **Surface mounted:** "Open/Close/Stop" push buttons; NEMA 1
1. **Surface mounted:** "Open/Close" key switch with "Stop" push button; NEMA 1
1. **Flush mounted:** "Open/Close/Stop" push buttons; NEMA 1B
1. **Flush mounted:** "Open/Close" key switch with "Stop" push button; NEMA 1B

**** NOTE TO SPECIFIER **** Contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Select one of the following.

C. Control Operation:

1. **Constant pressure to close:**
 - a. **No sensing device required**

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- a. **2-wire, electric** sensing edge seal extending full width of door bottom bar. Provide a [retracting safety cord and reel] [self-coiling cable] connection to control circuit.

**** NOTE TO SPECIFIER **** Interruption of beam (when using photo eyes) or contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Select one of the following.

- 1. **Momentary contact to close:**
Fail- safe, UL325-2010 Compliant Entrapment Protection for Motor Operation
 - a. **Continuously monitored, wireless sensing/weather edge** seal extending full width of door bottom bar.
 - a. **2-wire, E.L.R.** (E.L.R. meets fail-safe/monitored device specifications) electric sensing edge extending full width of door bottom bar. Provide a [retracting safety cord and reel] [self-coiling cable] connection to control circuit.
 - a. **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. Electrical contractor to provide low voltage wiring from the transmitter and receiver to the door operator.
 - a. **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. Electrical contractor to provide low voltage wiring from the transmitter and receiver to the door operator.

**** NOTE TO SPECIFIER **** 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. Delete if not desired.

- D. **Sensing/Smoke Seal Edge:**
 - 1. Provide automatic reversing control by an automatic sensing switch within neoprene or rubber astragal extending full width of door bottom bar.
- E. **Electric Sensing Edge Device:**
 - 1. Provide only a wireless sensing edge connection to motor operator.
 - 2. Electric coiling cords or take-up reels are not allowed to connect bottom sensing edge to motor.

2.5 ACCESSORIES

**** NOTE TO SPECIFIER **** Fire doors are normally not locked, but may be if desired. Standard locking is based on door operation. Locking is not recommended for motor operated units. Delete the following paragraph unless mandatory.

- A. **Locking:**
 - 1. **None**
 - 1. **Padlockable slide bolt** on [coil] [fascia] side of bottom bar at each jamb extending into slots in guides. Provide interlock switches on Motor operated units.
 - 1. **Padlockable chain keeper** on guide. (Manual Chain operated.)
 - 1. **Masterkeyable cylinder operable** from [coil] [fascia] [both] side[s] of bottom bar, options for all types of operation. Provide interlock switches on Motor operated units.
 - a. Standard Mortise Cylinder
 - a. BEST 7-Pin
 - a. U-Change
 - a. Schlage

**** NOTE TO SPECIFIER **** Vision panels are available on UL rated doors through 4 hours and FM fire rated doors up to 1-1/2 hour. Show number (6 maximum per door) and placement on drawings. Minimum spacing is 5" (127 mm) apart, 12" (305 mm) in from guides. Delete below if not required.

- 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. Smaller vision panels are not acceptable.

**** NOTE TO SPECIFIER **** Include R-BBU battery back-up system with AlarmGard 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, but allows for programming open/close obstruction cycling should the sensing edge encounter a stationary obstruction in the opening during AC power, alarm signal closing. Coordinate with section for AlarmGard™ motor operated systems. Delete if not desired.

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C. **Battery Back-Up:**

1. **Model R-BBU Battery Back-Up System for AlarmGard Motor Operator:**
 - a. Prevent gravity closure for a minimum of four hours due to power failure.

**** NOTE TO SPECIFIER **** Fire emergency annunciators are available for use with a AlarmGard motor operator and FireGard series release devices. Horn/strobe available with all FireGard series devices; strobes may require synchronization with other systems. Voice warning module available with type by device only. Delete below if not desired.

D. **Fire Emergency Annunciator:**

1. [ADA compliant horn/strobe] [Voice Warning Module] fire emergency annunciator to give advanced warning that fire shutter is about to close, activating warning signal upon alarm.

**** NOTE TO SPECIFIER **** Exposed moving operator components lower than 8 feet above floor level may create hazards required to be covered per UL 325. Specify an operator cover whenever this field condition exists.

E. **Operator [and Full Bracket Mechanism] Cover:**

1. Provide minimum 24 gauge [galvanized steel] [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

**** NOTE TO SPECIFIER **** Floor level test devices are available for use with FireGard motor, chain and crank systems to allow for testing of the fire door at floor level instead of releasing a fusible link located above the coil which requires ladders and additional equipment. Delete if not desired.

F. **Floor Level Test Device:** For FireGard™ Motor, Chain or Crank operator.

1. Provide assembly that allows activation and reset from floor level.

**** NOTE TO SPECIFIER **** A Trim Package is custom-made to hide visible bolts, fasteners and other exposed hardware.

G. **Trim Package:**

1. Minimum 16 gauge [powder coated steel to match guides] [#4 type 304 finish stainless steel].

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.

**** NOTE TO SPECIFIER **** Include NFPA 105 when labeled smoke protection is required (model Amarr 4202 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

Entrematic reserves the right to change specifications and designs without notice and without incurring obligations.

- 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

Entrematic reserves the right to change specifications and designs without notice and without incurring obligations.