

SECTION 08 33 00

INSULATED ROLLING SERVICE DOOR



**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] overhead insulated rolling doors
- 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, and installation of control station and wiring.
- C. **Products That May Be Supplied, But Are Not Installed Under This Section:**
  - 1. **Control Station**

**1.2 SYSTEM DESCRIPTION**

- A. **Design Requirements:**
  - 1. **Wind Loading:**
    - a. Supply doors to withstand up to [ ] psf ( [ ] Pa) design wind load
  - 2. **Cycle Life:**
    - a. Design doors of standard construction for normal use of up to 20 cycles per day maximum, and an overall maximum of 50,000 operating cycles for the life of the door

Door specifications and technical data subject to change without notice.

**\*\* NOTE TO SPECIFIER\*\*** For doors over 50,000 cycles, please select the 1024 High-Speed, High-Cycle Insulated Door.

3. **Seismic Performance:**
  - a. Provide manufacturer's seismic calculations confirming ASCE7-10
4. **Insulated Door Slat Material Requirements:**
  - a. Flame Spread Index of 0 and a Smoke Developed Index of 10 as tested per ASTM E84
  - b. Sound Transmission Class (STC) rating up to 30 for the curtain and up to 22 for the entire assembly, as tested per ASTM E90 and based on testing a complete, operable assembly
  - c. Minimum R-value of 8.0 (U-value of 0.125) as calculated using the ASHRAE Handbook of Fundamentals
  - d. Insulation to be CFC Free with an Ozone Depletion Potential (ODP) rating of zero

### 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 ISO 9001:2008 registration
    - b. Provide manufacturer and installer qualifications - see 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 doors 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. Amarr: 165 Carriage Court, Winston-Salem, NC 27105. ASD. Tel: (800) 503-3667. Fax: (336) 251-1851. Email: [Marketing@amarr.com](mailto:Marketing@amarr.com) Website: [www.amarr.com](http://www.amarr.com).
  - a. **Model:** 4100

Door specifications and technical data subject to change without notice.

**Substitutions:** Not permitted

## 2.2 PRODUCT INFORMATION

A. **Model:** Amarr 4100

## 2.3 MATERIALS

A. **Curtain:**

1. **Fabrication:**

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

- a. **Slat Material:** No. 6F, (Listed Exterior/Interior):
  - 1) **Galvanized Steel/Galvanized Steel (No Paint Finish):** Manufacturer recommended gauge based on performance requirements. Minimum 24/24 gauge, Grade 40, ASTM A 653 galvanized steel zinc coating.
  - 1) **Stainless Steel/Galvanized Steel:** Minimum 22 gauge AISI type 304 #4 finish stainless steel/24gauge, Grade 40, ASTM A 653 galvanized steel zinc coating
  - 1) **Stainless Steel/Stainless Steel:** Minimum 22/22 gauge AISI type 304 #4 finish series stainless steel
  - 1) **Aluminum/Aluminum:** 0.040 inch (1.016 mm) aluminum
- b. **Insulation:** 7/8 inch (22 mm) foamed-in-place, closed cell urethane
- c. **Total Slat Thickness:** 15/16 inch (24 mm)
- d. **Flame Spread Index** of 0 and a **Smoke Developed Index** of 10 as tested per ASTM E84
- e. **R-value:** 8.0
- f. **STC Rating:** Up to 30 for the curtain and up to 22 for the entire assembly, as tested per ASTM E90 and based on testing a complete, operable assembly

2. **Exterior Slat 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] [white] [tan] 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 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:** type 304 #4 finish
- a. **Aluminum:** [Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]

3. **Interior Slat 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] [white] [tan] 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 baked-on base coat and [gray] [white] [tan] 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]

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[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:** type 304 #4 finish
- a. **Aluminum:** [Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]

- B. **Endlocks:** Fabricate interlocking sections with high strength [nylon] [galvanized cast iron] endlocks on alternate slats each secured with two ¼" (6.35 mm) rivets. Provide windlocks as required to meet specified wind load.

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

- 1. **Nylon:** Required up to 21'-5" width (DBG - Distance Between Guides)
- 1. **Galvanized cast iron:** Required if above 21'-5" width (DBG - Distance Between Guides)

- C. **Bottom Bar**

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

- 1. **Configuration:**
  - a. **Insulated Bottom Bar:** Reinforced extruded aluminum interior face with full depth insulation and exterior skin slat to match curtain material and gauge. Minimum 4" tall x 1-1/16" thickness.
  - a. **Heavy Duty Bottom Bar:** 6" x 2" x 3/8" aluminum tubular extrusion configured to withstand 350% more impact than standard bottom bar. (Doors up to 12' wide; interior mounted only).

- 2. **Finish:**

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

- a. **Exterior:** Match slats
- a. **Interior:** [Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized] [Powder coat to match slats]

- D. **Guides:**

- 1. **Fabrication:**

- a. Minimum 3/16 inch (4.76 mm) [structural steel] [stainless steel] [aluminum] angles. Provide windlock bars of same material when windlocks are required to meet specified wind load. 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.

**\*\* 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 or aluminum 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.

**\*\* NOTE TO SPECIFIER \*\*** Mill finish structural stainless steel guide angles are used for stainless steel guide components over 12'-0" (3.66 m) high and on units wider than 21'-4" (6.50 m).

- 2. **Finish:**

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

- a. **Powder Coat (Stock Colors):** Zirconium treatment followed by a [gray] [tan] [white] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **SpectraShield® Coating System (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:** [type 304 #4 finish] [Mill finish]
- a. **Aluminum:** [Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]

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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 3/16 inch (5 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:**

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

- a. **Powder Coat (Stock Colors):** Zirconium treatment followed by a [gray] [tan] [white] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- a. **SpectraShield® Coating System (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

G. **Hood:**

Minimum [24 gauge galvanized steel] [24 gauge stainless steel] [0.040 inch (1.016 mm) aluminum] 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:**

**\*\* 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] [white] [tan] 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:** type 304 #4 finish
- a. **Aluminum:** [Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]

H. **Weatherstripping:**

1. **Bottom Bar:**

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

- a. **Manually Operated Doors:** Replaceable, bulb-style, compressible EDPM gasket extending into guides
- a. **Bottom Bar, Motor Operated Doors:** Sensing/weather edge with neoprene astragal extending full width of door bottom bar

**\*\* NOTE TO SPECIFIER \*\*** The following weatherstrip options are available; delete those not desired.

2. **Guides:** Replaceable vinyl strip on guides sealing against [fascia side] [both sides] of curtain
3. **Hood:** Neoprene/rayon baffle to impede air flow above coil

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4. **Lintel Seal:** Nylon brush seal fitted at door header to impede air flow

## 2.4 OPERATION

- A. **Manual Chain Hoist:** Provide chain hoist operator with endless steel chain, chain pocket wheel and guard, geared reduction unit, and chain keeper secured to guide. Fabricate gear box to completely enclose operating mechanism and be oil-tight.

**\*\* NOTE TO SPECIFIER \*\*** Select model MG operators for units that will routinely cycle less than 20 times per day and require no more than 3/4 HP. Select SG operators for units that will cycle more than 20 times per day and for large size units that will require greater than 3/4 HP.

- A. **Motor – Standard Use – Model MG (Industrial Duty Gear Head) Operator:** The operator must not extend above or below the door coil when mounted front-of-coil. Rated for a maximum of 20 cycles per hour (not to be used for consecutive hours) cULus listed (to comply with UL requirements in The United States and Canada), Totally Enclosed Non Ventilated gear head operator(s) rated (1/3) (1/2) or (3/4) hp as recommended by door manufacture for size and type of door, \_\_\_\_\_ Volts, \_\_\_\_\_ Phase. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, [emergency manual chain hoist] [provisions for auxiliary push-up operation] and control station(s). Motor shall be high starting torque, industrial type, protected against overload with an auto-reset thermal sensing device. Primary speed reduction shall be heavy-duty, lubricated gears with mechanical braking to hold the door in any position. Operator shall be equipped with [an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist.] [a disconnect cable for auxiliary push-up operation.] Operator drive and door driven sprockets shall be provided with #50 roller chain. [Provide an integral Motor Mounted Interlock system to prevent damage to door and operator when mechanical door locking devices are provided.] Operator shall be capable of driving the door at a speed of 8 to 9 inches per second (20 to 23 cm/sec). Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the door. 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.

- A. **Motor - Continuous Use - Model SG (Super Duty Gear Head) Operator:** The operator must not extend above or below the door coil when mounted front-of-coil. cULus listed (to comply with UL requirements in The United States and Canada). Totally Enclosed Fan Cooled gear head operator(s) rated (1/2) to (7 1/2) hp as recommended by door manufacture for size and type of door, \_\_\_\_\_ Volts, \_\_\_\_\_ Phase. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, emergency manual chain hoist provided up to 2 hp and control station(s). Motor shall be high starting torque, industrial type, with overload protection. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the door in any position. When equipped, the emergency manual chain hoist assembly is automatically disengaged when motor is energized. A disconnect chain shall not be required to engage or release the manual chain hoist. Operator drive and door driven sprockets shall be provided with minimum #50 roller chain. Operator shall be capable of driving the door at a speed of 8 to 9 inches per second (20 to 23 cm/sec). Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the door. The motor shall be removable without affecting the limit switch settings. 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.

**\*\* NOTE TO SPECIFIER \*\*** Most common control stations are listed below. Delete sections B through C for manual push-up or crank /hoist operation.

- B. **Control Station:**

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

1. **Surface mounted:** "Open/Close/Stop" push buttons; NEMA 1
1. **Surface mounted:** "Open/Close" key switch with "Stop" push button; NEMA 3R
1. **Surface mounted:** "Open/Close/Stop," push buttons with keyed lock-out, not masterkeyable; NEMA 4
1. **Flush mounted:** "Open/Close/Stop" push buttons; NEMA 1B
1. **Flush mounted:** "Open/Close" key switch with "Stop" push button; NEMA 1B

- C. **Control Operation:**

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

Door specifications and technical data subject to change without notice.

1. **Constant Pressure to Close:**
  - a. **No sensing device required**
  - a. **2-wire, electric sensing edge seal** 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.

**\*\* 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. **2-wire, E.L.R. electric sensing/weather edge seal** 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.

2. **Sensing/Weather Edge:** Automatic reversing control by an automatic sensing switch within neoprene or rubber astragal extending full width of door bottom bar.

**\*\* NOTE TO SPECIFIER \*\*** Select one or both of the following.

- a. **Electric sensing edge device.** 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.
- b. **Pneumatic sensing edge device.** Provide [self-coiling cable] [retracting safety cord and reel] connection to control circuit.

## 2.5 ACCESSORIES

**\*\* NOTE TO SPECIFIER \*\*** Standard locking is based on door operation. Locking is not recommended for motor operated units.

- 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 in slat 6F only. Show number and placement on drawings. Minimum spacing is 1-1/2 inches (40 mm) apart, 12" (305 mm) in from guides. Delete below if not required.

- B. **Vision Panels:** 10 x 1-1/2 x 3/4 inch thick (254 x 38 x 19 mm) oval acrylic panes set with double-sided foam glazing tape and fully contained within slat assembly. Refer to drawings for number and placement. Smaller vision panels are not acceptable.

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

- C. **Interior Aesthetic Covers:**
  1. **Operator [and Bracket Mechanism] Cover:** Minimum [24 gauge galvanized steel] [24 gauge stainless steel] [0.040 inch (1.016 mm) aluminum] 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 \*\*** A Trim Package is custom-made to hide visible bolts, fasteners and other exposed hardware.

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2. **Trim Package:** Minimum 16 gauge [powder coated steel to match guides] [type 304 #4 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
- B. 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 CLEANING**

- A. Clean surfaces soiled by work as recommended by manufacturer
- B. Remove surplus materials and debris from the site

#### **3.5 DEMONSTRATION**

- A. Demonstrate proper operation to Owner's Representative
- B. Instruct Owner's Representative in maintenance procedures

**END OF SECTION**

Door specifications and technical data subject to change without notice.