

SECTION 08 33 00 Rolling Counter Shutters

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 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 and highlighted, e.g.: [redacted].

PART 1 GENERAL

1.1 SUMMARY

- A. **Section Includes:** [manual] [and] [electric operated] rolling counter 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 DESIGN REQUIREMENTS

- 1. **Wind Loading:**
 - a. Supply doors to withstand up to [redacted] psf ([redacted] Pa) design wind load

****NOTE TO SPECIFIER**** If your project does not involve a custom layout or custom product modifications, please delete 2 and 3. If you are unsure, please contact Architectural Design Support at 833-958-1273.
- 2. **Custom Layout**
 - a. Product has been reconfigured for a custom layout, refer to drawings by CornellCookson.
- 3. **Customized Product**
 - a. This product has custom modifications designed by CornellCookson. Contact Manufacturer for details.

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 9001:2015 registration
 - b. Provide manufacturer and installer qualifications - see below
 - c. Provide manufacturer's installation instructions
 - d. Provide manufacturer's Health Product Declaration (HPD) for each product
4. **Closeout Submittals:**
 - a. Operation and Maintenance Manual
 - b. Certificate stating that installed materials comply with this specification

1.3 QUALITY ASSURANCE

- A. **Qualifications:**
 1. **Manufacturer Qualifications:** ISO 9001:2015 registered and a minimum of five years experience in producing counter doors of the type specified
 2. **Installer Qualifications:** Manufacturer's approval

1.4 DELIVERY STORAGE AND HANDLING

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

1.5 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:**
 1. **Clopay:** 8585 Duke Boulevard, Mason, OH 45040.
 2. **Cornell**
 3. **Cookson**

Substitutions: Not permitted

2.2 PRODUCT INFORMATION

- A. **Model:** CESC10

2.3 MATERIALS

- A. **Curtain:**

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

1. **Slat Configuration:**
 - a. **Galvanized Steel with Finish as Described Below:** No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, minimum 22 gauge ASTM A 653, Commercial Quality, galvanized steel with extruded tubular aluminum bottom bar with continuous lift handle and vinyl astragal

- a. **Stainless Steel:** No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, minimum 22 gauge AISI type 304 #4 finish stainless steel with stainless steel angle bottom bar with lift handles and vinyl astragal
- a. **Aluminum:** No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, minimum 0.040 inch aluminum with extruded tubular aluminum bottom bar with continuous lift handle and vinyl astragal
- a. **Perforated Slats (Steel):** No. 1P ScreenGard interlocked flat-faced, perforated slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, 22 gauge ASTM A 653, Commercial Quality, galvanized steel perforated with 0.062 inch (1.6 mm) diameter openings at 0.094 inch (2.4 mm) staggered centers, approximately 22 percent free area with extruded aluminum tubular bottom bar, continuous lift handle and vinyl astragal

2. **Finish:**

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

- a. **GalvaNex™ Coating System (Stock Colors):**
 - 1) **GalvaNex™** -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] baked-on polyester enamel finish coat
 - 2) **GalvaNex™ Ultra-** Ultra Powder Coat to be applied as a protective top coat over GalvaNex finish. Top coat is a polyester based structured wear resistant clear powder coat of 2.5-3.5 mils cured film thickness. ASTM D-3363 pencil hardness: 2H or better. Tested per ASTM B117. Base coating of GalvaNex to be 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) **SpectraShield** - 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. 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.
 - 2) **SpectraShield Ultra** – Ultra Powder Coat to be applied as a protective top coat over SpectraShield finish. Top coat is a polyester based structured wear resistant clear powder coat of 2.5-3.5 mils cured film thickness. ASTM D-3363 pencil hardness: 2H or better. Tested per ASTM B117. Base coating of SpectraShield color as selected by Architect from manufacturer's color range, more than 180 colors.
- a. **Atmoshield® Powder 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. Zirconium pre-treatment followed by baked-on polyester powder coat, with [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better
- a. **Aluminum:** [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized] [Powder coat – color selected by architect]
- a. **Stainless Steel:** type 304 #4 finish

B. **Endlocks:**

Fabricate interlocking slat sections with high strength molded nylon endlocks riveted to ends of alternate slats

C. **Guides:**

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

1. **Fabrication:**
 - a. **Aluminum:** Heavy duty extruded aluminum sections with snap-on cover to conceal fasteners. Provide polypropylene pile runners on both sides of curtain to eliminate metal to metal contact between guides and curtain.
 - a. **Stainless Steel:** 12 gauge formed shapes

2. **Finish:**

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

- a. **Aluminum:** [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized] [Powder coat – color selected by architect]
- 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. **Atmoshield® Powder 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 [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]; 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

- D. **Shaft Assembly:**

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

1. **Counterbalance Shaft Assembly:**
 - a. **Barrel:** Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width
 - b. **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
1. **Tube Motor Shaft Assembly:**
 - a. **Barrel:** Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width

- E. **Brackets:**

Fabricate from reinforced steel plate with 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. **Standard (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. **Atmoshield® Powder 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 [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]; 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

F. 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.

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] [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. **Atmoshield® Powder 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 [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]; 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:** [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized] [Powder coat – color selected by architect]
- a. **No hood provided** when coil is above ceiling

2.4 OPERATION

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

A. Manual Operation:

- 1. **Push-Up:** Manual lift or pole with hook
- 1. **Crank Hoist:** Crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. 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.

A. Motor Operation:

- 1. **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.] [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 up to 9" per second or as recommended for door size. 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.

**** NOTE TO SPECIFIER **** A tube motor is ideal for tighter clearances, providing the convenience of a motor, all within limited headroom conditions. Recommended for applications not exceeding 5 cycles per hour.

1. **Motor - Electric Tube Motor Operator:** Rated for a maximum of 5 cycles per hour, UL325 listed, rated (50 ft-bl/sec) (100 ft-bl/sec) or (150 ft-bl/sec) as recommended by door manufacturer for size and type of door, 120 Volts, 1 Phase. Provide complete with electric tube motor, maintenance free electric brake, emergency manual crank hoist and control station(s). Motor shall be protected against overload with an auto-reset thermal sensing device. Operator shall be equipped with an emergency manual crank hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual crank hoist. Electronic limit switch required. The electrical contractor shall mount the control station(s) and supply all conduit and wiring per the overhead door wiring instructions.
2. **Motor - Evergard Tube Motor Operator:** Complete electric tube motor operator with 120V Single Phase, Nema1 Wall Mounted Control Unit, 24V rechargeable battery back-up, 12 ft long, pre-wired, wiring harness, solenoid actuated brake and speed governor and 3 button push button station. Motor is rated for a maximum of 10 cycles per hour, 24 VDC TENV motor, overload protection, cULus recognized, with a rating as recommended by door manufacturer for size and type of door. Operator shall be capable of driving the door at a speed of 3 to 8 inches per second (8.69 to 20.22 cm/sec). Operator shall also be capable of 12-28 RPM. Fully adjustable mechanical internal worm limit switch mechanism shall synchronize the operator with the door. The electrical contractor shall mount the control stations and supply the appropriate disconnect switch all conduit and wiring per the overhead door wiring instructions. Provide a guide mounted interlock system to prevent damage to the door and operator when mechanical door locking devices are provided.
 - a. Supply model **EverGard Motor Control Box** with programmable logic board and back-up power supply. 120v AC input power with auto switch to 24v DC back-up power. Back-up power to provide power for 10 cycles (25 minutes)
 - i. (2) 12v rechargeable lead sealed batteries.
 - ii. Programmable battery self-testing
 - iii. Monitoring points for open/close position, AC power loss and battery low voltage
 - iv. 12' wiring whip to connect control box and motor standard (**Optional 25', 50', 75' & 120' available**)
 - v. Emergency Push Button (EPB): Flush mounted, single red push button station wired for emergency open function only.
 - vi. Door power indicator: Flush mounted voltage monitor for battery back-up system. Flashing red light indicates low battery power and maintenance check-up. Can be located up to 150 ft. away from motor control box.
 - vii. Non-resettable cycle counter
 - viii. UL325 compliant system.

**** NOTE TO SPECIFIER **** Most common control stations for motorized shutters are listed below; Consult Architectural Design Services at (800) 233-8366 ext. 4551 for other options.

B. **Control Station:** For use with motor operated units only

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

1. **Surface mounted:** "Open/Close/Stop" push buttons; 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
1. **Flush mounted:** "Open/Close" key switch with ["Stop" push button and] [small format Best type 7-pin cylinder] [Schlage 6-pin cylinder] [#5 U-Change cylinder]; NEMA 1B

C. **Control Operation:**

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

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 **** If momentary contact to close is desired, one of the following safety devices must be selected. For a non-contact solution that provides the most coverage in the opening, SafetyGard UL325 Light Curtain with Dynamic Sequential Blanking must be selected. The following options are available individually or in conjunction; please select as desired.

1. **Momentary contact to close:**

Fail-safe, UL325-2010 Compliant Entrapment Protection for Model MG Motor Operation.

 - a. **SafetyGard UL325 Light Curtain with Dynamic Sequential Blanking:** Provide monitored, non-contact light curtain consisting of a transmitter and a receiver to be mounted to the guide assembly of the door in the provided mounting channel, projecting a thru beam across the width of the door for the height of the light curtain (3ft or 6ft depending on opening size 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
 - b. **Smartsync Wireless Edge Kit** – continuously monitored, wireless sensing/weather 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. Wireless edge kit will use Zigbee wireless technology. Radio band wireless sensing edges will not be permitted.
 - c. **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.
 - d. **NEMA 4X photo eye sensors** consisting of a transmitter and receiver that are to be mounted within 6" (152.4 mm) of the counter/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.
 - e. **NEMA 1 photo eye sensors** consisting of a transmitter and receiver that are to be mounted within 6" (152.4 mm) of the counter/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 **** Optional secondary entrapment protection devices are available if desired. Consult Architectural Design Support at (800) 233-8366 ext. 4551 for other options.

2.5 ACCESSORIES

**** NOTE TO SPECIFIER **** Standard locking methods are listed below. Locking is not recommended for motor operated units.

A. **Locking:**

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

1. **None**
1. **Padlockable slide bolt:** Padlockable slide bolt on coil side of bottom bar at each jamb extending into slots in guides. Provide interlock switches on motor operated units.
1. **Masterkeyable cylinder lock:** Operable from [coil] [fascia] [both] side[s] of bottom bar. Provide interlock switches on motor operated units.
 - a. Standard Mortise Cylinder
 - a. BEST 7-Pin
 - a. U-Change
 - a. Schlage

**** NOTE TO SPECIFIER **** Plastic laminate countertops are available for openings up to 15'-0" (4.57 m) wide. 12" (305 mm) minimum sill depth; 36" (914 mm) maximum sill depth.

B. **Countertop:**

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

1. **Plastic laminate covered:** 1-1/4" (32 mm) thick, of size and configuration for opening size and wall construction. Color as selected by Architect from standard range of Wilson Art or Formica plastic laminates.

**** NOTE TO SPECIFIER **** Stainless steel countertops are available for openings up to 11'-0" (3.35 m) wide with sill depths up to 20" (508 mm).

1. **Stainless steel 14 gauge type 304 #4 finish:** ["T" shaped design for face of wall mounted unit] [Rectangular shape design for between jams mounted unit] of size and configuration for opening size and wall construction

**** 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. **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.
- D. **Graphic Door Image:**
 1. **Decal Graphics:** [Flat face surface of door curtain slats] [hood] [fascia] [guides] [bottom bar] to include a 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. (No width limit; Max. height: 10 ft.)

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. 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