SECTION 08 33 00

WIND-MASTER®

Insulated rolling service Door THERMISER MAX INSULATED ROLLING SERVICE DOOR

ASHRAE® 90.1 AND IECC® 2018 COMPLIANT 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:** Electric operated overhead insulated rolling doors designed to be operable up to 20 psf wind load

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 be operational up to 20 PSF maximum 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

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

3. **Air Infiltration to Comply With:**

a. **ASHRAE®** (American Society of Heating, Refrigeration, and Air-Conditioning Engineers) Standard 90.1-2007, 2010 & 2013 requirements of less than .3 CFM/FT2

b. **IECC®** (International Energy Conservation Code) 2018 requirements of less than 1.0 CFM/FT2

4. **Seismic Performance:**

a. Provide manufacturer’s seismic calculations confirming ASCE7-10

5. **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. If an STC of 32 is desired, additional options are required. All configurations are evaluated 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

6. **Safety:**

a.Chain operated doors shall be designed so that the door immediately stops upward or downward travel and is maintained in a stationary position when the hand chain is released by user.

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

d. Manufacturer must provide independent testing lab results proving .3 CFM/FT2 or less air infiltration

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 9001:2015 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. **Cookson:** 1901 South Litchfield Road Goodyear, AZ 85338 Telephone: (800) 233-8366.

2. **Cornell**

3. **Clopay Building Products**

**Substitutions:** Not permitted

2.2 PRODUCT INFORMATION

A. **Model:** ESD20W

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 18/24 gauge, 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

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. **Air infiltration rate:** Less than .3 CFM/FT2, as tested per ASTM E283 validated by an independent testing agency. Test report required.

g. **STC Rating:** Up to 32 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) **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] [brown] 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 rising 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** color as selected by Architect from manufacturer's color range, more than 180 colors

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

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

3. **Interior Slat 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] [brown] 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 rising 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** color as selected by Architect from manufacturer's color range, more than 180 colors

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

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

B. **Endlocks:**

Alternate slats each secured with two ¼” (6.35 mm) rivets. Fabricate interlocking sections with alternating galvanized steel endlocks only for doors under 12’5” wide or alternating steel powder coated roller wind locks with alternating high strength nylon end locks for doors over 12’5” wide.

C. **Bottom Bar**

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

1. **Configuration:**

a. **Double Structural Steel Angle Bottom Bar:** minimum 2” x 2” x 1/8” structural steel angles with curtain starter slat and bottom seal.

2. **Finish:**

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

a. **Exterior:** Match slats

a. **Interior:** Match slats

D. **Guides:**

1. **Fabrication:**

a. Minimum 1/4 inch (6.35 mm) structural steel angles with UHMW-PE wear strips inside both guide angles. Provide 1” x 1” x 3/16” structural angle windlock retainer to meet specified wind load. 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. 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.  **AtmoShield Powder Coat (Color Selected by Architect):** Zirconium pre-treatment followed by baked-on polyester powder coat, [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. **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 after fabrication

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:** Springless shaft construction with inertia brake.

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

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. **AtmoShield Powder Coat (Color Selected by Architect):** Zirconium pre-treatment followed by baked-on polyester powder coat, [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. **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 after fabrication

G. **Hood:**

Minimum [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:**

\*\* **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. **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

H. **Weatherstripping:**

1. **Bottom Bar:**

a. **Bottom Bar, Motor Operated Doors:** Sensing/weather edge with neoprene astragal extending full width of door bottom bar

\*\* **NOTE TO SPECIFIER** \*\* The following weather-strip 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

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

2.4 OPERATION

A. **Motor - Continuous Use - Model SG (Super Duty Gear Head) Operator:**

1. The operator must not extend above or below the door coil when mounted front-of-coil.
2. cULus listed (to comply with UL requirements in The United States and Canada).
3. 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.
4. 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).
5. Motor shall be high starting torque, industrial type, with overload protection.
6. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the door in any position.
7. When equipped, the emergency manual chain hoist assembly is automatically disengaged when motor is energized.
8. A disconnect chain shall not be required to engage or release the manual chain hoist.
9. Operator drive and door driven sprockets shall be provided with minimum #50 roller chain.
10. Operator shall be capable of driving the door at a speed of up to 9” per second or as recommended for door size.
11. Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the door.
12. The motor shall be removable without affecting the limit switch settings.
13. 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\*\*** Select SGHNX NEMA 4X Corrosion Proof rated operators for units that have potential to be exposed to low pressure direct spray and require a stainless steel corrosion resistant finish.

B. **Motor - Continuous Use - Model SGHNX (Super Duty Gear Head NEMA 4X) Operator:**

1. UL Listed NEMA 4X rated

2. The operator must not extend above or below the door coil when mounted front-of-coil.

3. Totally Enclosed Non-Ventilated gear head operator(s) rated (1/2) to (2) hp as recommended by door manufacture for size and type of door, \_\_\_\_Volts, \_\_\_\_Phase.

4. 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).

5. Motor shall be high starting torque, industrial type, with overload protection.

6. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the door in any position.

7. 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.

8. Operator drive and door driven sprockets shall be provided with minimum #50 roller chain.

9. Operator shall be capable of driving the door at a speed of up to 9” per second or as recommended for door size.

10. 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.

11. 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.

12. Stainless Steel Corrosion Resistant finish to withstand low pressure direct spray

**\*\*NOTE TO SPECIFIER\*\***  Select SGHNX NEMA 4/12 Watertight/Oiltight/Dusttight/Carwash rated operators for units that have potential to be exposed to low pressure direct spray.

C**. Motor - Continuous Use - Model SGHN4 (Super Duty Gear Head NEMA 4/12) Operator:**

1. UL Listed NEMA 4/12 rated

2. The operator must not extend above or below the door coil when mounted front-of-coil.

3. Totally Enclosed Non-Ventilated gear head operator(s) with powder coated steel mounting plates rated (1/2) to (1-1/2) hp as recommended by door manufacture for size and type of door, \_\_\_\_Volts, \_\_\_\_Phase.

4. 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).

5. Motor shall be high starting torque, industrial type, with overload protection.

6. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the door in any position.

7. 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.

8. Operator drive and door driven sprockets shall be provided with minimum #50 roller chain.

9. Operator shall be capable of driving the door at a speed of up to 9” per second or as recommended for door size.

10. 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.

11. 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; consult the Architectural Design Support at (800) 233-8366 ext. 4551 for other options. **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

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 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

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.

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

2.5 ACCESSORIES

A. **Locking:**

1. **None**

\*\* **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.

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

**\*\* NOTE TO SPECIFIER \*\*** LED-illuminated light kit is a guide mounted LED light strip to provide an additional visible color coded notification on the door opening status. Delete below if not required.

1. **LED Light Kit :**
	1. Include LED Light Kit in [5ft] [10ft] [15ft] length. IP68 rated LED light kit to include guide mounting channel, power supply, controller and signal wire. LED lights to be solid red when door is closed, flash red when door is in motion and solid green when door is fully open.

**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**