SECTION 08 33 00

INSULATED ROLLING SERVICE DOORS

EXTREME® PERFORMANCE 1024 INSULATED ROLLING 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 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.: \_\_\_\_\_\_\_\_\_\_\_\_.

**PART 1** GENERAL

1.1 SUMMARY

A. **Section Includes:** electric operated overhead rolling doors rated for high cycle and/or high speed use

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

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 Panel** and **Means of Activation**

1.2 SYSTEM DESCRIPTION

1. **Design Requirements:**
2. **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) 2012 requirements of less than 1.0 CFM/FT2

**2. Wind Loading:**

a. Supply doors to withstand up to 20 PSF maximum wind load

a. Supply doors to be operational up to 10 PSF maximum wind load

a. Supply doors to withstand up to [ \_\_ ] psf ( \_\_\_ Pa) design wind load. Consult factory for availability.

3. **Cycle Life:**

a. Design doors of construction for high cycle use of up to 1,000,000 cycles for the life of the product.

b. Design doors of construction for high speed operation to achieve operational speed up to 24 inches per second open and up to 12 inches per second close

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. Insulation to be CFC Free with an Ozone Depletion Potential (ODP) rating of zero

\*\*NOTE TO SPECIFIER\*\* If your project does not involve a custom layout or custom product modifications, please delete 6 and 7. If you are unsure, please contact Architectural Design Support at 833-958-1273.

5. **New Product:**

a. This is a new product that has been developed by CornellCookson. Alternate manufacturers may be unable to meet the specification.

6. **Custom Layout:**

a. Product has been reconfigured for a custom layout, refer to drawings by CornellCookson.

7. **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 proof of manufacturer ISO 9001:2015 registration

b. Provide proof of manufacturer and installer qualifications - see 1.4 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

1.4 QUALITY ASSURANCE

A. **Qualifications:**

1. **Manufacturer Qualifications:** ISO 9001:2015 registered and a minimum of five years experience in producing slatted coiling doors

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:** Five years or 1,000,000 cycles, whichever comes first, from date of shipment, against defects in material and workmanship, on mechanical components, operator and control panel.

B. **Maintenance:** Submit for owner’s consideration and acceptance of a required preventative maintenance schedule and service agreement for installed products.

**PART 2** PRODUCTS

2.1 MANUFACTURER

A. **Manufacturer:**

1. **Cornell:** 24 Elmwood Avenue, Mountain Top, PA 18707.

**Telephone:** (800) 233-8366.

a. **Model:** EPI1024

2. **Cookson**

3. **Clopay Building Products**

**Substitutions:** Not permitted

2.2 MATERIALS

A. **Curtain**: Air infiltration rate of less than .3 CFM/FT2, validated by an independent testing agency. **Test report required.**

1**. Fabrication:**

a. **Slats:** (Gauge listed Exterior/Interior)

1) **Stainless Steel:** Minimum 22/22 gauge AISI type 304 #4 finish stainless steel. Total Slat Thickness: 15/16 inch (24 mm)

1) **Steel:** [24/24][22/22] gauge, interconnected strip steel slats conforming to ASTM A-653, to provide security and long term sustainability. Total Slat Thickness: 15/16 inch (24 mm).

b. **Insulation:** 13/16” of insulation enclosed within the slat assembly with an R-value of 8.0 as calculated using the ASHRAE Handbook of Fundamentals

c. Flame Spread Index of 0 and a Smoke Developed Index of 10 as tested per ASTM E84.

2. **Finish:**

a. **Stainless Steel:** type 304 #4 finish

a. **CycleShield™ (Stock Colors):**

1) Powder coating system with low coefficient of friction wear-resistance to include a galvanized base coat consistent with ASTM A-653, Zirconium treated and bonderized for prime coat adhesion, with a [gray] [tan] [white] baked-on polyester powder coat rust inhibiting paint with a minimum 2 mils (0.0508 mm) cured film thickness.

1. **CycleShield™ Ultra (Stock Colors):**

Ultra Powder Coat to be applied as a protective top coat over CycleShield 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 CycleShield [gray] [tan] [white].

1. **CycleShield™ Ultra (RAL or Custom Color Selected by Architect):**

Ultra Powder Coat to be applied as a protective top coat over CycleShield 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 CycleShield [color as selected by Architect from manufacturer's standard color range, over 180 colors] [custom color as selected by Architect] [custom color]

a. **Powder Coat (RAL or Custom Color Selected by Architect):**

1) Powder coating system with low coefficient of friction wear-resistance to include a galvanized base coat consistent with ASTM A-653, Zirconium treated and bonderized for prime coat adhesion, with [RAL powder coat color] [custom color] as selected by Architect baked-on polyester powder coat rust inhibiting paint with a minimum 2 mils (0.0508 mm) cured film thickness.

B. **Bottom Bar:**

1. **Configuration:**

a. **Stainless Steel Angles:** Minimum two 2x2x3/16 inch (50x50x3.2 mm) structural stainless steel angles

a. **Structural Steel Angles:** Minimum two 2x2x3/16 inch (50x50x3.2 mm) structural steel angles

2. **Finish:** Match curtain slats

C. **Endlocks:**

Fabricate interlocking sections with malleable steel endlocks on alternate slats each secured two 1/4" high strength low profile rivets. Windlock material as required based on system description and manufacturer’s recommendation. Provide windlocks as required to meet specified wind load.

D. **Guides:**

1. **Fabrication:**

 **a.** Thermal break required. Minimum 3/16” thick ASTM A36 bolted together with ½” fasteners to form a channel for the curtain to travel. Sealing, self lubricating UHMW anti-wear strips and block materials provided. The wall angle portion shall be continuous and fastened to the surrounding structure with either minimum ½” fasteners or welds, both on 36” centers maximum. The guides must be pre-notched to allow accurate insertion of pre- assembled coil box.

2. **Finish:**

a. **Powder Coat (Stock Colors):** Zirconium pre-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 pre-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

E. **Shaft Assembly:**

1. **Barrel:** Minimum 6” steel tubing capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width

2. **Springless Design:** System shall be designed to operate safely without the use of a counterbalance system. Door designed with springs is not acceptable. A Direct Connect Inertia Brake shall be mounted directly to the Drive Barrel shaft on the non-drive side to help prevent curtain free-fall. Engagement of the inertia brake shall disable the electrical control circuit. A chain driven inertia brake is not acceptable.

F. **Brackets:**

1. **Configuration:**

a. Constructed of steel not less than 5/16” thick and shall be bolted to the wall angle with minimum 1/2” fasteners. Both drive and tension brackets are to be furnished with precision ball bearings. The unitized barrel, bracket, and curtain unit to have a tension side access hatch feature to allow removal of barrel and bearing components for replacement or servicing.

2. **Finish:**

a. **Powder Coat (Stock Color):** Zirconium treatment followed by a dark bronze baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

G. **Pre-Assembled Coil Box:** Factory pre-assembled coil box to contain fully wrapped curtain on barrel and structurally supported brackets. Welded Truss shall brace endplates together at the top and bottom with steel channel and flatbar diagonal bracing.

H. **Hood:** [24 gauge galvanized steel] [22 gauge stainless steel] with reinforced top and bottom edges

1. **Finish:**

a. **Stainless steel:** type 316 #4 finish

a. **Powder coating system** to include a galvanized base coat consistent with ASTM A-653, Zirconium treated and bonderized for prime coat adhesion, with a [gray] [tan] [white] [standard manufacturer powder coat color] [custom color] baked-on polyester powder coat, as selected by Architect, rust inhibiting paint with a minimum 2 mils (0.0508 mm) cured film thickness.

I. **Perimeter Sealing:** To provide environmental separation and help prevent infiltration

1. **Bottom Bar:** Neoprene astragal extending full width of door bottom bar

2. **Guides:** Replaceable vinyl strip on guides sealing against [fascia side] [both sides] of curtain

3. **Lintel Seal:** Double brush seal with EPDM sandwiched between the two brush seals at door header to impede air flow

* 1. OPERATION

**High Cycle operator and Apex™ Pro SmartController System** consisting of SEW Eurodrive, TEFC, brake motor/reducer with separate wall mounted control panel:

1. PLC controller with variable frequency drive featuring soft-start and soft-stop at both ends of limit travel. Doors without a frequency drive will not accepted.

2. Available in 60Hz at 208/230, 460, or 575V (3-Phase); 208/230V, 1-Phase; 120V, 1-Phase (1HP only); or 230V, 1 Ph, 50 Hz or 380V, 3 Ph, 50 Hz.

 a. HP to be provided as recommended by manufacturer

3. Motor mounted adjustable variable frequency drive; soft start and soft stop at both ends of limit travel. Operation that which does not include a frequency drive will not be accepted

a. Control Panel mounted VFD will not be accepted

4. Control panel shall include

a. Circuit for activation of warning annunciator when closing

b. Non-resettable Cycle Counter

c. Lower position sensor

d. Absolute encoder for door position monitoring. Mechanical Limit Switches are not accepted

5. UL Listed operator with B2 Controls with 1.5 Sec delay on reverse and timer to close

6. Run Time Limiting timer

7. Primary Fuse Block inside panel

8. Circuit supplied for activation of warning annunciator when closing

9. Non-resettable Cycle Counter

10. Larger terminal blocks provided for high voltage /power supply connections

11. Angled terminal blocks to simplify external field wiring connections

12. High performance motor brake

13. Motor selection, gear reducer gear-set and size, with sprocket and roller chain selection based on manufacturer’s recommendation, capable of starting and stopping from any position in either direction

14. Motor operator and control system shall be designed for a sustained continuous duty cycling.

15. SEW – Helical gear reducer

16. Synthetic extended temperature gear oil in reducer for increased operating temperature range.

17. Limit sprockets and drive sprocket with QD Bushing installed on Operator

18. Variable Frequency Drive with Braking Resistor

19. Limit Chain and Sprockets

B. **Entrapment Protection:**

The following protection safety devices provided standard:

1. **UL325-2010 compliant NEMA 4X photo eye** sensors consisting of a transmitter and receiver that are to be mounted within 6” (152.4 mm) of the floor, projecting an IR beam across the entire width of the door. Interruption of beam before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position.

2. **SafetyGard™ Light Curtain Technology** consisting of an integral 6’ (1828.8mm) high light curtain, if where an object breaks the plane of the light curtain, the door reverses to the open position. Doors provided without a light curtain will not accepted.

C. **Control & Drive System Options:**

1. Activation devices [motion detector] [induction loop] [additional photo eyes]

2. Sensing devices [wireless sensing edge] [presence sensor] [additional photo eyes]

3. Annunciators [strobe] [beacon]

4. Two-door interlocks

5. Long distance wiring

6. Additional monitoring controls

2.4 ACCESSORIES

\*\* **NOTE TO SPECIFIER** \*\* Show number and placement of vision panels on drawings. Minimum spacing is 6 inches (150 mm) apart, 12” (305 mm) in from guides. Delete below if not required.

A. Vision Panels: 10x1-5/8 inch (254 x 41.28 mm) oval acrylic panes set with double sided foam glazing tape to provide ambient light and allow visibility of oncoming traffic. 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 UL325. Specify an operator cover whenever this field condition exists.

B. **Operator [and Bracket Mechanism] Cover:** [24 gauge galvanized steel] [22 gauge stainless steel] sheet metal covers at coil area of unit. Finish matches door hood

C. **Sloped Bottom Bar (Pitch Plate):** Tapered to match slope of opening and accommodate for irregular floor conditions. **Maximum pitch with standard bottom bars:** 1/8” per foot on doors with astragal or sensing edge; 1/16” per foot on doors without astragal or sensing edge. Maximum slope is ½” per foot.

D. **Trim Package:** Minimum 16 gauge [powder coated steel to match guides] [type 304 #4 finish stainless steel]. Custom-made to hide visible bolts, fasteners and other exposed hardware.

**\*\* NOTE TO SPECIFIER \*\*** Vibration isolators not available for units requiring wind load or seismic validation. Delete below if not required.

1. **Vibration Isolators:**
	1. Include continuous vibration isolators pre-installed on both guides to reduce vibration transferred from the door to the structure. Vibration isolators should be expected to reduce vibration by up to 14%. Dampening pads are to be manufactured from nitrile oil-resistant rubber, durometer 50A.

**\*\* 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**