SECTION 08 33 00

ROLLING GRILLES – OPEN DESIGN

EXTREME® PERFORMANCE 324 GRILLE

**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

\*\* **NOTE TO SPECIFIER** \*\* Include appropriate language below, including a reference to section 01 23 00 alternates, if rolling grilles are included in any alternates, add section 01 23 00 to 1.1 B. Delete if no alternates.

1.1 SUMMARY

A. **Section Includes:** Electric operated overhead rolling grilles.

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. 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

A. **Design Requirements:**

1. **Cycle Life:**

a. Construction for high cycle usage of up to 300,000 cycles for the life of the product

b. Construction for high speed operation to achieve an operating speed of 24 inches per second open and 12 inches per second close

1.3 SUBMITTALS

A. Reference Section 01 33 00 Submittal Procedures; submit the following items:

1. **Product Data**

2. **Shop Drawings**

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

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:** Five year or 1,000,000 cycle warranty on motor; Two years or 300,000 cycles, whichever occurs first, on all other components 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. **Cornell:** 24 Elmwood Avenue, Mountain Top, PA 18707.

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

 **Model:** [EPG324 (Straight Pattern)] or [EPG324B (Brick Pattern)]

2. **Cookson**

3. **Clopay Building Products**

4. **Amarr**

**Substitutions:** Not permitted

2.2 MATERIALS

A. **Curtain:**

1. **Configuration - Straight Pattern (Model EPG324)**

a. **Horizontal Rods:** Minimum solid 5/16 inch (8 mm) diameter, 5056 H32 aluminum alloy sleeved with horizontal aluminum tube spacers to separate vertical links on alternate rods with continuous end tube spacers

b. **Vertical Spacing:** 2 inches (50.8 mm) on center

c. **Vertical Chains:** Solid 1/8” minimum aluminum links, 3/4 inch (19 mm) wide, positioned by aluminum tube spacers on 9 inch (228.6 mm) centers. Provide nylon insert nuts threaded on to the end of each rod to secure the chains.

1. **Configuration - Brick Pattern (Model EPG324B)**

a. **Horizontal Rods:** Minimum solid 5/16 inch (8 mm) diameter, 5056 H32 aluminum alloy sleeved with horizontal aluminum tube spacers to separate vertical links on every rod with continuous end tube spacers

b. **Vertical Spacing:** 2 inches (50.8 mm) on center

c. **Vertical Chains:** Solid 1/8” minimum aluminum links, 3/4 inch (19 mm) wide, positioned by aluminum tube spacers on 9 inch (228.6 mm) staggered centers. Provide nylon insert nuts threaded on to the end of each rod to secure the chains.

2. **Finish:**

[Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black duranodic]

B. **Bottom Bar:**

1. **Fabrication:**

a. **Extruded Aluminum Tubular Section:** Minimum 2x3.5x.093 inch (50.8x88.9 mm)

a. **Aluminum Angle:** Minimum 3x2x3/16 inch (76.2x50.8x4.8 mm) aluminum angle fascia side and 2x2x1/8 inch (50.8x50.8x3.2 mm) aluminum angle coil side

1. **Finish:**

[Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black duranodic]

\*\* **NOTE TO SPECIFIER** \*\* Use powder coat finish for exposed steel guide components and unpainted when steel guide components are recessed in the wall.

C. **Guides:** Wall Mounted: Heavy duty (minimum .109 inch thick) extruded aluminum sections with [snap-on cover to conceal fasteners and] Santoprene runners on both sides of curtain and self-lubricating UHMW bell mouth entry points to guide extrusions. Provide steel mounting angle as required for face of wall installation.

1. **Fabrication:**

a. **Aluminum Guide:**

1) **Finish:** [Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black duranodic]

b. **Steel Mounting Angle, Finish:**

1) **Standard (Stock Colors):** Phosphate treatment followed by a [gray] [tan] [white] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

1) **SpectraShield® Coating System (Color Selected by Architect):** Phosphate 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

1) **Corrosion Inhibitive:** Phosphate treatment followed by a corrosion inhibitive baked-on zinc enriched gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

1) **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication

C. **Guides:** Tube Mounted: Heavy duty (minimum .109 inch thick) extruded aluminum sections with [snap-on cover to conceal fasteners and] Santoprene runners on both sides of curtain and self-lubricating UHMW bell mouth entry points to guide extrusions. Provide steel tubes, floor saddles and hardware as recommended by manufacturer to support grille.

1. **Fabrication:**

a. **Aluminum Guide:**

1) **Finish:** [Mill finish] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black duranodic]

b. **Steel Tubes; Finish:**

1) **Unpainted**

1) **Standard (Stock Colors):** Phosphate treatment followed by a [gray] [tan] [white] baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

1) **SpectraShield® Coating System (Color Selected by Architect):** Phosphate 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

1) **Corrosion Inhibitive:** Phosphate treatment followed by a corrosion inhibitive baked-on zinc enriched gray polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

1) **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication

D. **Shaft Assembly:**

1. **Barrel:** Minimum 6” steel pipe 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. 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.

3. **Inertia Brake Engagement:** Shall disable the electrical control circuit. Chain driven inertia brake is not acceptable. Construction designed for 300,000 cycles.

E. **Brackets:** Fabricate from minimum 1/4 inch (6.35 mm) steel plate with cast iron flange mount self-aligning double sealed ball bearing, pre-lubricated with high temperature grease for use in reversing applications, with grease fitting for re-lube and setscrews for locking, at rotating support points to support springless shaft assembly and form end closures.

1. **Finish:**

a. **Powder Coat (Stock Colors):** Phosphate 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):** Phosphate 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:** Phosphate 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

2.3 OPERATION

A. **Pro-FDG operator consisting of SEW Eurodrive**, TEFC, brake motor/reducer with separate wall mounted control panel

1. PLC controller with variable frequency drive; soft-start and soft-stop at both ends of limit travel

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

3. [NEMA - 4/12] [NEMA 4X] [NEMA 7/9 (Div 2 only)] Wall Mounted Control Panel with OPEN/CLOSE/Mushroom Head Stop on Control Panel cover

4. UL325-2010 compliant NEMA 4X Photo eyes for primary entrapment protection

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

6. Flexible conduit on Wall Mounted Starter pre-populated will all wires (terminated and marked) necessary for interconnection between motor limit box and WMS Conduit to maintain same NEMA rating as selected above. (Excluded on NEMA 7/9 (Div 2 only)). Length to be equal to door height plus 3 feet.

7. Run Time Limiting timer

8. Primary Fuse Block inside panel

9. Circuit supplied for activation of warning annunciator when closing

10. Non-resettable Cycle Counter

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

12. Angled terminal blocks to simplify external field wiring connections

13. High performance motor brake

14. 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

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

16. SEW – Helical gear reducer

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

18. Powder Coated NEMA 4 limit box with terminal strip and Honeywell HD Limit Switches

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

20. Variable Frequency Drive with Braking Resistor

21. Rotary Limit Switches

22. Auxiliary emergency hand chain standard.

23. Limit Chain and Sprocket

\*\* **NOTE TO SPECIFIER** \*\* Most common control stations are listed below; consult Architectural Design Support at (800) 233-8366 ext. 4551 for other options.

B. **Control Stations:**

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

**\*\* NOTE TO SPECIFIER \*\* Per UL325-2010, doors without a connected and properly functioning primary entrapment protection** device will only function by constant pressure close operation. Select the operator function below when constant pressure close operation is acceptable. The motor control station(s) must be mounted within visible sight of the entire door opening and pressure must be maintained on “close” for the duration of each close cycle.

C. **Entrapment Protection:**

1. **UL325-2010 compliant NEMA 4X photo eye sensors (standard):** 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. Electrical contractor to provide low voltage wiring from the transmitter and receiver to the door operator.

1. **Wireless Electric 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. Contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position.

D. **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** \*\* 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. Hoods are not provided as standard and normally not provided for coil above ceiling application. Delete hood below if not desired.

A. **Hood [and Fascia]:** [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:**

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) Phosphate 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]

B. **Operator [and Bracket Mechanism] Cover:** [24 gauge galvanized steel] [24 gauge galvanized 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.

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 grilles with astragal or sensing edge; 1/16” per foot on grilles without astragal or sensing edge.

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

**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 grille 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 grilles 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**