**SECTION 08 33 00**

**Model 5015**

**ROLLING GRILLES – OPEN DESIGN**

**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:** [Manual] [and] [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. Masterkeyed cylinders.

 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 station.

 2. Manual release pull handle.

1.2 SYSTEM DESCRIPTION

 A. **Design Requirements:**

 1. **Cycle Life:**

a. Design grilles of standard construction to a standard maximum of 25 cycles per day and an overall maximum of 50,000 operating cycles for the life of the grille.

\*\* **NOTE TO SPECIFIER** \*\* Include SG or GH motor operator from section 2.4A for grilled that cycle up to 50 times per day.

a. Design grilles of special construction for high cycle use up to 50 cycles per day and an overall maximum of 100,000 operating cycles for the life of the grille.

\*\* **NOTE TO SPECIFIER \***\* Include GH motor operator from section 2.4A for grilles that cycle up to 300 times per day.

\*\*NOTE TO SPECIFIER\*\* If your project does not involve a custom layout or custom product modifications, please delete 4 and 5. If you are unsure, please contact Architectural Design Support at 833-958-1273.

2. **New Product:**

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

3. **Custom Layout:**

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

4. **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 1.3 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 grilles 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.

1. 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:**

1. **Cornell**, 24 Elmwood Avenue, Mountain Top, PA 18707 Phone: (800) 233-8366, Fax: (800) 448-526-0841. Underwriters Laboratories, Inc. (UL), ISO 9001:2015 Registered.

2. **Cookson**

3. **Clopay Building Products**

 B. **Model:** 5015

 **Substitutions:** Not Permitted

2.2 MATERIALS

A. **Curtain:**

 1. **5015 Straight Pattern**

a. **Horizontal Rods:** Solid 5/16 inch (8 mm) diameter, horizontal [aluminum] [stainless steel] rods with 1/2” tube spacers on 1-1/2” centers with 3/16" thick [aluminum] [stainless steel] hinged vertical connecting links (5/8" deep by 2 1/4" high) [9”] [6”] on center.

2. **Bottom Bar:** [4 x 1-3/4 inch (101.6 x 44.5 mm) extruded aluminum] [4 x 2 inch (101.6 x 50.8 mm) stainless steel] tubular section.

 3. **Finish:**

 a. **Aluminum Curtain and Bottom Bar:**

1. **Curtain:** [Clear anodized] [Bronze anodized] and **Bottom Bar:** [Clear anodized] [Bronze anodized].

1. **Curtain:** ColorCote™ Coating System, thermosetting powder coating applied with a minimum thickness of 2.5 mils. The color shall be selected by the architect and shall be chosen from [standard color chart] [custom color selection] and **Bottom Bar:** ColorCote™ Coating System, thermosetting powder coating applied with a minimum thickness of 2.5 mils. The color shall be selected be the same ColorCote finish as indicated in the curtain section.

 a. **Stainless Steel Curtain with Stainless Steel Bottom Bar:** #2B.

B. **Guides:** 1/4" thick continuous aluminum wall angles connected to 1-1/2" by 2-1/2" by 1/8" thick continuous extruded aluminum guide section. Continuous nylon wear strips inserted on both sides of the guide to eliminate metal-to-metal contact.

B. **Guides:** 1/4" thick continuous steel wall angles connected to 1-1/2" by 2-1/2" by 1/8" thick continuous stainless steel guide section. Continuous nylon wear strips inserted on both sides of the guide to eliminate metal-to-metal contact.

C. **Counterbalance Shaft Assembly:** The barrel shall be steel tubing of not less than 6” in diameter. Oil tempered torsion springs shall be capable of correctly counter balancing the weight of the curtain. The barrel shall be designed to limit the maximum deflection to .03” per foot of opening width. The springs shall be adjusted by means of an exterior wheel.

 D. **Brackets:** Fabricate from minimum 1/4 inch (6.35 mm) steel plate.

 1. **Finish:**

a. **Steel:** Factory applied baked-on thermosetting powder coat. The finish shall be the same ColorCote finish as indicated in the curtain section.

 a. **ASTM A 123**, Grade 85 zinc coating, hot-dip galvanized after fabrication.

\*\* **NOTE TO SPECIFIER** \*\* Hoods are not normally provided for coil above ceiling application, delete hood below if not desired.

E. **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 as required to prevent excessive sag.

 1. **Finish:**

a. **ColorCote™ Coating System** to include an ASTM A 653 galvanized base coating, bonderized coating for prime coat adhesion, and factory applied thermosetting powder coating applied with a minimum thickness of 2.5 mils. The color shall be selected by the architect and shall be chosen from [standard color chart] [custom color selection].

 a. **Stainless steel:** #4 polish.

a. **Aluminum:** [Mill finish] [Clear anodized] [Bronze anodized].

2.3 ACCESSORIES

\*\* **NOTE TO SPECIFIER** \*\* To provide security, a locking mechanism is required on all grilles. Most common locking methods are listed below; consult architectural design services (800) 294-4358 EXT. 1280 for options.

 A. **Locking:**

1. **Manual Push-Up:** Keyed cylinder locking into both jambs operable from both sides of curtain.

1. **Manual Crank Hoist:** Keyed cylinder locking into both jambs operable from coil side of curtain.

1. **Motor Operated:** Keyed cylinder locking into both jambs operable from both sides of curtain with motor interlock cutout switches.

\*\* **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:** Provide [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 \*\*** 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.

2.4 OPERATION

 A. **Manual Push-Up:** Provide pole with hook.

 A. **Manual Crank Hoist:** Provide 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 25 times per day and require no more than ¾ HP. Select SG operators for units that will cycle between 26-50 times per day and for large size units that will require greater than ¾ HP. Select GH operators for units that will cycle 51-300 times per day.

A. **Supply Model MG Electric Motor Operator, industrial duty** - rated for a maximum of 20 cycles per hour, cULus listed, Totally Enclosed Non Ventilated gear head operator(s) rated (1/3) (1/2) or (3/4) hp as recommended by door manufacture for size and type of door, \_\_\_\_Volts, \_\_\_\_Phase. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, [emergency manual chain hoist] [provisions for auxiliary push-up operation] and control station(s). Motor shall be high starting torque, industrial type, protected against overload with an auto-reset thermal sensing device. Primary speed reduction shall be heavy-duty, lubricated gears with mechanical braking to hold the door in any position. Operator shall be equipped with [an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist.] [a disconnect cable for auxiliary push-up operation.] Operator drive and door driven sprockets shall be provided with #50 roller chain. [Provide an integral Motor Mounted Interlock system to prevent damage to door and operator when mechanical door locking devices are provided.] Operator shall be capable of driving the door at a speed 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.

A. **Supply Model SG Electric Motor Operator, continuous duty**, cULus listed, Totally Enclosed Fan Cooled gear head operator(s) rated (1/2) to (7 1/2) hp as recommended by door manufacture for size and type of door, \_\_\_\_Volts, \_\_\_\_Phase. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, emergency manual chain hoist provided up to 2 hp and control station(s). Motor shall be high starting torque, industrial type, with overload protection. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the door in any position. When equipped, the emergency manual chain hoist assembly is automatically disengaged when motor is energized. A disconnect chain shall not be required to engage or release the manual chain hoist. Operator drive and door driven sprockets shall be provided with minimum #50 roller chain. Operator shall be capable of driving the door at a speed 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 motor shall be removable without affecting the limit switch settings. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions

A. **Supply Model EverGard Electric Motor Operator with back-up power control box, Limited Duty** (up to 10 cycles per hour), cULus listed, TENV gear head operator, 24DVC. Horsepower as recommended by manufacturer. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, emergency manual chain hoist and control station(s). Motor shall be high starting torque, industrial type, with overload protection. Primary speed reduction shall be heavy-duty gears running in maintenance free, sealed gear box with mechanical braking to hold the door in any position. The emergency manual chain hoist assembly is automatically disengaged when motor is energized. A disconnect chain shall not be required to engage or release the manual chain hoist. Operator 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 motor shall be removable without affecting the limit switch settings. The electrical contractor shall mount the control stations and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.

1. 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 minimum 10 open/close cycles and 48 hr stand-by.

a. (2) 12v rechargeable lead sealed batteries.

b. Programmable battery load testing

c. Monitoring points for open/close position, AC power loss and battery low voltage

d. 12’-0” (standard) wiring whip to connect control box and motor

 (up to 120’-0” available)

e. Emergency Push Button (EPB): Flush mounted, single red push button station wired for emergency OPEN function only. If grille is at full open (normal business hours), depressing EPB will not affect the grille’s position.

f. 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.

g. Non-resettable cycle counter

h. UL325 & UL864 compliant system.

\*\* **NOTE TO SPECIFIER \*\*** Most common control stations are listed below; consult architectural design services (800) 294-4358 EXT. 1280 for options. Grilles without a bottom sensing edge must be wired for constant pressure on the “close” button.

 B. 1. **Control Station:** Flush mounted, "Open/Close/Stop" push buttons; NEMA 1B.

 1. **Control Station:** Flush mounted, "Open/Close" key switch with "Stop" push button; NEMA

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

\*\* **NOTE TO SPECIFIER** \*\* Per UL325-2010, grilles without a connected and properly functioning primary entrapment protection device will only function by constant pressure close operation. Select a primary entrapment protection devise from 2.4-B-1 below to enable momentary contact close operation, including the connection of radio to enable momentary contact close operation, including the connection of radio controls, induction loops, timer to close, etc.

C. **Entrapment Protection:** Provide the following primary entrapment protection device to enable momentary contact close operation.

\*\* **NOTE TO SPECIFIER** \*\* A continuously monitored wireless sensing edge or a standalone 2-wire E.L.R. electric sensing edge is recommend to meet the UL 325-2010 requirement for entrapment protection while also providing property protection. A sensing edge will detect objects projecting through the opening above 6” from the floor that photo eyes may not detect.

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. electric 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. Provide a

 [retracting safety cord and reel] [self-coiling cable] connection to control box.

d. **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. 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 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.

\*\* **NOTE TO SPECIFIER** \*\* THE ITEM LISTED BELOW IS AN OPTIONAL SECONDARY ENTRAPMENT PROTECTION DEVICE, AND MAY BE USED IN CONJUNCTION WITH A SET OF PRIMARY ENTRAPMENT PROTECTION PHOTO EYES OR WITH CONSTANT PRESSURE CLOSE OPERATION. DELETE IF NOT DESIRED.

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

1. Provide an electric sensing edge device. Contact before grille fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. 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.

2.5 ACCESSORIES

A. **Fixed Panel**: Static grille curtain with frame assembly to fill adjacent space(s) around coiling grille.  Finish and pattern to match coiling grille.

**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**