SECTION 08 33 00

SentryGate® 4

 ROLLING SECURITY GRILLES

**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] [electrical] operated rolling security 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. Padlocks. Masterkeyed cylinder

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 Manual release pull handle.

1.2 SYSTEM DESCRIPTION

A. **Design Requirements:**

\*\* **NOTE TO SPECIFIER** \*\* If cycles are 300,000 or above, select an alternate product. Consult Architectural Design Support at (800) 233-8366 ext. 4551 for other options.

1. **Cycle Life:**

a. Standard construction for normal use of up to 20 cycle per day maximum, and an overall maximum of 50,000 operating cycles for the life of the grille

 2. **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.

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 units 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:**

1. **Cornell:** 24 Elmwood Avenue, Mountain Top, PA 18707. Telephone: (800)-233-8366.

2. **Cookson**

3. **Clopay**

**Substitutions:** Not permitted

2.2 PRODUCT INFORMATION

A. **Model:** ESG21

2.3 MATERIALS

A. **Curtain:**

1. **Fabrication:**

a. **High strength injection molded components** arranged in a "brick" style pattern. Color to be [black] [white] matte finish. Assemble panels to create an open pattern curtain with slots having a clear aperture of 7” (177.8 mm) x 1-1/2” (38.1 mm). Panels to be interconnected using continuous horizontal aluminum rods, 5/16 inch (7.94 mm) diameter, 5056 H32 aluminum alloy, spaced 2” (50.8 mm) on center and locked in guides with steel retention rings. Curtain assembly shall be completely smooth and free of sharp edges. Curtain to be attached to shaft using minimum 22 gauge galvanized steel fastening sections, each 4” (101.6 mm) in length.

B. **Bottom Bar**

1. **Configuration & Finish:**

a. Minimum 2 x 3-1/2 inch (50.8 x 88.9 mm) extruded aluminum tubular section in the following finish: [Mill finish] [Clear anodized] [Black anodized]

C. **Guides:**

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

1. **Mounting:**

a. **Wall Mounted:** Heavy duty extruded aluminum sections with snap-on cover to conceal fasteners and polypropylene pile runners on both sides of curtain. Provide [steel] [aluminum] mounting angle as required for face of wall installation.

a. **Tube Mounted:** Heavy duty extruded aluminum sections with snap-on cover to conceal fasteners and polypropylene pile runners on both sides of curtain. Provide [steel] [aluminum] tubes, floor saddles and hardware as recommended by manufacturer to support grille.

2. **Finish:**

\*\* **NOTE TO SPECIFIER** \*\* Select one of the following. If guides are exposed, select powder coated to match. If components are recessed in wall, steel components will remain unpainted.

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

a. **Steel:**

1) **Powder Coat (Gray):** Phosphate treatment followed by a gray baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

1) **Powder Coating System to match hood (Color Selected by Architect):** Phosphate treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, minimum 32 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) **Unpainted**

D. **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:** Oil-tempered, heat-treated steel helical torsion spring assembly. Maximum effort to operate not to exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque

E. **Brackets:** Fabricate from minimum 3/16 inch (4.76 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points.

1. **Finish:**

a. **Powder Coat (Gray) (No Hood Required):** Phosphate treatment followed by a gray baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

a. **Powder Coating System to Match Hood**: (Color Selected by Architect): Phosphate treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, minimum 32 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

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

F. **Hood and Fascia:** Minimum [24 gauge galvanized 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 [gray] [white] [tan] 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) Phosphate treatment followed by baked-on polyester powder coat, with [color as selected by Architect from manufacturer's standard color range, minimum 32 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. **Aluminum:** [Clear anodized] [Black anodized] [Mill]

2.4 OPERATION

A. **Manual Operation:**

1. **Push-Up:** Provide pole with hook.

1. **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.

1. **Manual ControlGard Chain Hoist:** Provide chain hoist operator with endless steel chain, chain pocket wheel and guard, geared reduction unit, and chain keeper secured to guide. Chain hoist to include integral brake mechanism that will immediately stop upward or downward travel and maintain the door in a stationary position when the hand chain is released by the user.

\*\***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 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.] 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 of 8 to 9 inches per second (20 to 23 cm/sec). 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 SPECIFIER\*\*** Select SG operators for units that will cycle more than 20 times per day and for large size units that will require greater than 3/4 HP.

1. **Motor - Continuous Use - Model SG (Super Duty Gear Head) Operator:** The operator must not extend above or below the door coil when mounted front-of-coil. cULus listed (to comply with UL requirements in The United States and Canada). 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 of 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.

\*\***NOTE TO SPECIFIER\*\*** Most common control stations are listed below; consult Architectural Design Support at (800) 233-8366 ext. 4551 for other options. Grilles without bottom sensing edge must be wired for constant pressure on the “close” button. **Delete sections B through C for manual push-up or crank /hoist operation.**

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

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

\*\***NOTE TO SPECIFIER\*\*** Constant pressure close operation is recommended for motor operated SentryGate grille units.

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. **Control Operation:**

1. **Constant Pressure to Close:**

a. No sensing device required

\*\* **NOTE TO SPECIFIER** \*\* Interruption of beam (when using photo eyes) or contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Select one of the following.

1. **Momentary Contact to Close:**

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

a. **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.

a. **2-wire E.L.R.** (E.L.R. meets fail-safe/monitored device specification) electric sensing edge extending full width of door bottom bar. Provide a [retracting safety cord] [self-coiling cable] connection.

a. **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

a. **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\*\*** 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.

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

E. **Electric Sensing Edge Device:**

1. Provide only a wireless sensing edge connection to motor operator.

2. Electric coiling cords or take-up reels are not allowed to connect bottom sensing edge to motor

2.5 ACCESSORIES

A. **Locking:**

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

1. Masterkeyable cylinder operable from [coil] [fascia] [both] side[s] of bottom bar, options for all types of operation. Provide interlock switches on motor operated units.

a. Standard Mortise Cylinder

a. BEST 7-Pin

a. U-Change

a. Schlage

B. **Emergency Egress System:** Provide wall mounted manual release system pull handle to disengage motor operator and automatically open grille for emergency egress without the use of electrical power. Release of pull handle will reset grille to normal motor operation.

\*\* **NOTE TO SPECIFIER** \*\* Contact the Factory for Specific Design.

\*\***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] [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 matching hood.

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

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

**\*\* 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

1.1 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.

1.2 INSTALLATION

A. General: Install grille and operating equipment with necessary hardware, anchors, inserts, hangers and supports.

B. Follow manufacturer's installation instructions.

1.3 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.

1.4 CLEANING

A. Clean surfaces soiled by work as recommended by manufacturer.

B. Remove surplus materials and debris from the site.

1.5 DEMONSTRATION

A. Demonstrate proper operation to Owner's Representative.

B. Instruct Owner's Representative in maintenance procedures.

**END OF SECTION**