

SECTION 08 33 00
ROLLING SERVICE DOORS

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®, 2018 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

- **Section Includes:** [Manual] [and] [electric operated] overhead rolling doors.

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. Doors to withstand up to [] PSF design wind load
 - b. Supply doors to be operational up to 20 PSF maximum wind load

**** NOTE TO SPECIFIER **** Please select from one of the following. If life cycle expectancy desired exceeds 100,000, select a door from the High Performance product line. Contact the Architectural Design Support Team at (800) 233-8366 Ext. 4551 for options.

2. Cycle Life:

- a. Standard construction for normal use of up to 20 cycles per day maximum, and a life cycle expectancy of up to 50,000
- b. Special construction for high-cycle use, and a life cycle expectancy of up to 100,000

****NOTE TO SPECIFIER**** If your project does not involve a custom layout or custom product modifications, please delete 3 and 4. If you are unsure, please contact Architectural Design Support at 833-958-1273.

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**
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. **If it is not the specified product, supply certificate of compliance to specification**
5. **Closeout Submittals:**
 - a. Operation and Maintenance Manual
 - b. Document stating that installed materials comply with this specification
 - c. Warranty documentation

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

- Reference Section 01 66 00 Product Storage and Handling Requirements

B. Follow manufacturer's instructions

1.6 WARRANTY

- **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:**
Cornell: 24 Elmwood Avenue, Mountain Top, PA 18707 Telephone: (800) 233-8366
- B. **Alternates:**
1. **Cookson**
 2. **Clopay Building Products**

2.2 PRODUCT INFORMATION

A. **Model:** ESD10

2.3 MATERIALS

A. **Curtain:**

****NOTE TO SPECIFIER**** Please select from one of the following.

- **Slats:**

- a. **Galvanized Steel:** No. 5F (prefinished with GalvaNex™ Coating System), Grade 40 steel, ASTM A 653 galvanized steel zinc coating. Gauge as required to meet performance requirements.
- b. **Galvanized Steel Perforated:** No. 5P, 20 gauge, Grade 40 steel, ASTM A 653 galvanized steel zinc coating perforated with 0.062 inch (1.6 mm) diameter openings at 0.094 inch (2.4 mm) staggered centers, and approximately 22 percent free area.
- c. **Aluminum:** No. 5F, 16 gauge (0.050 mm) aluminum.
- d. **Aluminum Perforated:** No. 5P, 16 gauge (0.050) aluminum perforated with 0.095 inch (2.4 mm) diameter openings at 0.156 inch (4.0 mm) staggered centers, approximately 25 percent free area.
- e. **Stainless Steel:** No. 5F, 20 gauge (0.035 mm) AISI type 316 series stainless steel.
- f. **Stainless Steel:** No. 5F, 20 gauge (0.035 mm) AISI type 304 series stainless steel.

****NOTE TO SPECIFIER**** Please select from one of the following.

2. **Finish:**

- a. **GalvaNex™** Coating System (Stock Color):
 - 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] [black] 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 rinsing agents in preparation for chemical bonding baked-on base coat and [gray] [tan] [white] [brown] baked-on polyester enamel finish coat.
- a. **Powder Coat:**
 - 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
 - a) **SpectraShield** color as selected by Architect from manufacturer's color range, more than 180 colors
 - b) **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.
 - c) **Custom color** as selected by Architect
 - d) **AtmoShield** textured environmental coating; color as selected by Architect, [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]
- a. **Stainless Steel:** #4 type 316 finish
- a. **Stainless Steel:** #4 type 304 finish
 - a. **Aluminum:** [Mill] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]

**** NOTE TO SPECIFIER **** Nylon endlocks are recommended whenever possible to minimize operating noise.

B. **Endlocks:**

Alternate slats each secured with two ¼" (6.35 mm) rivets. Fabricate interlocking sections with high strength [nylon – available to 21'5" width] [galvanized cast iron]. Provide endlocks/windlocks as required to meet specified wind load.

**** Note To Specifier**** If galvanized steel curtain is selected, bottom bar options are limited to extruded aluminum or structural steel angles. If stainless steel curtain is selected bottom bar options are limited to extruded aluminum or stainless steel angles. If aluminum curtain is selected bottom bar options are limited to extruded aluminum or aluminum angles. Please select from one of the following.

C. **Bottom Bar**

1. **Configuration:**

- a. **Extruded Aluminum** (Standard to 21'4" opening width): Extruded aluminum alloy 6063-T5
- b. **Structural Steel Angles** (Standard above 21'4" opening width)
- c. **Structural Aluminum Angles**
- d. **Heavy Duty Aluminum Bottom Bar:** 6" x 2" x 3/8" impact resistant tubular extrusion (Available to 11'11" opening width)

****NOTE TO SPECIFIER**** Please select from one of the following.

2. **Finish:**

- a. **Aluminum:** [Mill] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]

****NOTE TO SPECIFIER**** Please select from one of the following.

b. **Powder Coat:**

- 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
- a) **Stock color** to match curtain [gray] [tan] [white] [brown]
 - b) **SpectraShield** color as selected by Architect from manufacturer's color range, more than 180 colors
- c) **Custom color** as selected by Architect
 - d) **AtmoShield** textured environmental coating; color as selected by Architect, [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]
- c. **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
- d. **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication
- e. **Stainless Steel:** Type 316 #4 brushed finish
- f. **Stainless Steel:** Type 304 #4 brushed finish

D. **Guides:**

1. **Fabrication:**

- a. [Structural steel] [Stainless steel] [Structural aluminum] angles. Provide windlock bars as required, removable bellmouths, and bottom bar stoppers of same material.

****NOTE TO SPECIFIER**** Please select from one of the following.

2. **Finish:**

a. **Powder Coat:**

- 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
- a) **Stock color** to match curtain [gray] [tan] [white] [brown]
 - b) **SpectraShield** color as selected by Architect from manufacturer's color range, more than 180 colors
- c) **Custom color** as selected by Architect
 - d) **AtmoShield** textured environmental coating; color as selected by Architect, [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]
- b. **Aluminum:** [Mill] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]
- c. **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
- d. **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication
- e. **Stainless Steel:** Type 316 #4 brushed finish provided for openings up to 14'4" width and 10'0" height. Mill finish structural provided for openings wider than 14'-4" (4.27 m) and higher than 10'-0" (3.05 m)
- e. **Stainless Steel:** Type 304 #4 brushed finish provided for openings up to 14'4" width and 10'0" height. Mill finish structural provided for openings wider than 14'-4" (4.27 m) and higher than 10'-0" (3.05 m)

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:** Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs. (110 N). Provide wheel for applying and adjusting spring torque

F. **Brackets:**

Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures

• **Finish:**

****NOTE TO SPECIFIER**** Please select from one of the following.

• **Powder Coat:**

- 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
- a) **Stock color** to match curtain [gray] [tan] [white] [brown]
 - b) **SpectraShield** color as selected by Architect from manufacturer's color range, more than 180 colors
- c) **Custom color** as selected by Architect
 - d) **AtmoShield** textured environmental coating; color as selected by Architect, [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]
- b. **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
- c. **Hot-dip Galvanized:** ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication

G. **Hood:**

[Galvanized steel] [Stainless steel] [Aluminum] with reinforced top and bottom edges. Provide intermediate support brackets as required.

****NOTE TO SPECIFIER**** Please select from one of the following.

- **Finish:**

- a. **GalvaNex™** Coating System (Stock Color):
 - 1) 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
- b. **Powder Coat:**
 - 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
 - a) **SpectraShield** color as selected by Architect from manufacturer's color range, more than 180 colors
 - b) **Custom color** as selected by Architect
 - c) **AtmoShield** textured environmental coating; color as selected by Architect, [Weathered iron] [Weathered brown] [Earth] [Weathered bronze] [Terra cotta] [Stucco] [Platinum] [Olde copper] [Rust] [Dark roast] [Weathered copper]
- c. **Stainless Steel:** #4 type 316 finish
- d. **Stainless Steel:** #4 type 304 finish
- e. **Aluminum:** [Mill] [Clear anodized] [Medium bronze anodized] [Dark bronze anodized] [Black anodized]

**** NOTE TO SPECIFIER **** The following four weatherstrip options are available individually or in conjunction; please select as desired.

H. **Weatherstripping:**

- 1. **Bottom Bar:** Replaceable, bulb-style, compressible EDPM gasket extending into guides
- 2. **Guides:** Vinyl strip sealing against fascia side 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

**** NOTE TO SPECIFIER **** Specify RapidResponse™ configuration for fast repair after impact. Extra slats are already included in the curtain length. Select 3' of extra slats or 6' of extra slats, RapidResponse impactable bottom bar and RapidResponse guide configuration. Any opening that will experience vehicular traffic should include this option.

I. **Rapid Response:**

- 1. **Curtain Configuration:**
 - a) 3 feet of extra curtain material
 - b) 6 feet of extra curtain material
- 2. **Guide Configuration:** 56" removable lower guide section for quick access to curtain for Repairs
- 3. **Impactable Bottom Bar:** 2 structural steel angles with flexible connecting members

- **OPERATION**

- **Manual Push-Up:** Provide lift handles on bottom bar and pole with hook
- **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.
- **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

- **Motor – Standard Use – Model MG (Industrial Duty Gear Head) Operator:**

- The operator must not extend above or below the door 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 manufacturer 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, 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 sized for #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 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 motor operator wiring instructions.

**** NOTE TO SPECIFIER **** Select model MGHC operator for units that have the potential for indirect splash contact.

- **Motor – Standard Use – Model MGHC (Industrial Duty Gear Head NEMA 3R) Operator:**

- UL Listed NEMA 3R rated
- The operator must not extend above or below the door 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 with powder coated steel mounting plates rated (3/4) hp ____Volts, ____Phase.
- Provide complete with electric motor and factory pre-wired motor control terminals, maintenance-free solenoid actuated brake, 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.
- Operator drive and door-driven sprockets shall be sized for #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 electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the motor operator wiring instructions.

****NOTE TO 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.

• **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 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**** 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.

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

- UL Listed NEMA 4X rated
- The operator must not extend above or below the door coil when mounted front-of-coil.
- 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.
- 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.
- Stainless Steel Corrosion Resistant finish to withstand low pressure direct spray

****NOTE TO SPECIFIER**** Select SHN79/SGN79 NEMA 7/9 Explosion & Dust-Ignition Proof rated operators for units that have potential to be exposed to flammable gases, vapors, mists & dusts that are considered flammable

• **Motor - Continuous Use - Model SHN79/SGN79 (Super Duty Gear Head NEMA 7/9) Operator:**

- UL Listed NEMA 7/9 explosion proof & Dust-Ignition Proof (UL1203) rated
 - Only operators UL 1203 listed are accepted; operators manufactured from components as compliant per UL 1203 are not permitted
 - Rated for explosion proof classifications:
 - Class I, Division 1, Groups C & D
 - Class II, Division 1, Groups E, F, & G
- Only operators UL 325 listed are permitted
- Built-in intrinsically safe circuits for control station and sensing edge as entrapment device protection are required
- Integrated explosion-proof control box with motor and control circuits pre-wired to the control box
- Dual isolated circuit design is required
- Totally Enclosed Fan Cooled (TEFC) 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**** Select SGHNX NEMA 4/12 Watertight/Oiltight/Dusttight/Carwash rated operators for units that have potential to be exposed to low pressure direct spray.

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

- UL Listed NEMA 4/12 rated
- The operator must not extend above or below the door coil when mounted front-of-coil.
- 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 manufacturer 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.

• Motor – Model EverGard (TENV Gear Head) Operator:

- Electric Motor Operator with back-up power control box.
- Limited Duty (up to 10 cycles per hour).
- cULus listed.
- 120v AC input power with auto switch to 24v DC back-up power. ½ or ¾ 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 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 stations and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.
- Back-up power to provide minimum 10 open/close cycles and 48 hr. stand-by.
- (2) 12v rechargeable lead sealed batteries.
- Programmable battery load testing
- Monitoring points for open/close position, AC power loss and battery low voltage
- 12'-0" (standard) wiring whip to connect control box and motor (up to 120'-0" available)
- Emergency Push Button (EPB): Flush mounted, single red push button station wired for emergency OPEN function only.
- If unit is at full open (normal business hours), depressing EPB will not affect the grille's position.
- 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.
- Non-resettable cycle counter
- UL325 & UL864 compliant system.

**** NOTE TO SPECIFIER **** A tube motor is ideal for tighter clearances, providing the convenience of a motor, all within limited headroom conditions. Recommended for applications not exceeding 5 cycles per hour.

- **Motor - Electric Tube Motor Operator:** Rated for a maximum of 5 cycles per hour, UL325 listed, rated (50 ft-bl/sec) (100 ft-bl/sec) or (150 ft-bl/sec) as recommended by door manufacturer for size and type of door, 120 Volts, 1 Phase. Provide complete with electric tube motor, maintenance free electric brake, emergency manual crank hoist and control station(s). Motor shall be protected against overload with an auto-reset thermal sensing device. Operator shall be equipped with an emergency manual crank hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual crank hoist. Electronic limit switch required. The electrical contractor shall mount the control station(s) and supply all conduit and wiring per the overhead door wiring instructions.

- **Motor - Evergard Tube Motor Operator:** Complete electric tube motor operator with 120V Single Phase, Nema1 Wall Mounted Control Unit, 24V rechargeable battery back-up, 12 ft long, pre-wired, wiring harness, solenoid actuated brake and speed governor and 3 button push button station. Motor is rated for a maximum of 10 cycles per hour, 24 VDC TENV motor, overload protection, cULus recognized, with a rating as recommended by door manufacturer for size and type of door. Operator shall be capable of driving the door at a speed of 3 to 8 inches per second (8.69 to 20.22 cm/sec). Operator shall also be capable of 12-28 RPM. Fully adjustable mechanical internal worm limit switch mechanism shall synchronize the operator with the door. The electrical contractor shall mount the control stations and supply the appropriate disconnect switch all conduit and wiring per the overhead door wiring instructions. Provide a guide mounted interlock system to prevent damage to the door and operator when mechanical door locking devices are provided.

- 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 power for 10 cycles (25 minutes)
 - (2) 12v rechargeable lead sealed batteries.
 - Programmable battery self-testing
 - Monitoring points for open/close position, AC power loss and battery low voltage
 - 12' wiring whip to connect control box and motor standard (**Optional 25', 50', 75' & 120' available**)

- Emergency Push Button (EPB): Flush mounted, single red push button station wired for emergency open function only.
- 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.
- Non-resettable cycle counter
- UL325 compliant system.

**** NOTE TO SPECIFIER **** Most common control stations are listed below; consult Architectural Design Support at (800) 233-8366 ext. 4551 for other options. Please select from one of the following.

J. Control Stations:

1. **Surface mounted:** "Open/Close/Stop" push buttons; NEMA 1 (standard)
2. **Surface mounted:** "Open/Close" key switch with "Stop" push button; NEMA 3R
3. **Surface mounted:** "Open/Close/Stop," push buttons with keyed lock-out, not masterkeyable; NEMA 4
4. **Flush mounted:** "Open/Close/Stop" push buttons; NEMA 1B
5. **Flush mounted:** "Open/Close" key switch with "Stop" push button; NEMA 1B
6. **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

K. Control Operation:

1. **Constant Pressure to Close:**
 - a. **No entrapment protection device required**

**** 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.

2. **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
- 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 items listed below are optional secondary entrapment protection devices, and may be used in conjunction with a set of primary entrapment protection photo eyes or with constant pressure close operation. Coordinate with primary entrapment protection; delete if not desired.

L. Sensing/Weather Edge:

1. **Electric sensing edge device:** Automatic sensing switch within neoprene or rubber astragal extending full width of door bottom bar. Contact before door fully closes shall cause door to immediately stop downward travel and automatically 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. **Pneumatic sensing edge device:** Contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Provide [self-coiling cable] [retracting safety cord and reel] connection to control circuit.

2.5 ACCESSORIES

**** NOTE TO SPECIFIER **** Standard locking is based on door operation. Locking is obtained through motor operator gearing and secured control station; no locking required on door. Please select from one of the following.

A. Locking:

1. **None**
2. **Padlockable slide bolt** on [coil] [fascia] side of bottom bar at each jamb extending into slots in guides. Provide interlock switches or motor mounted interlock switches.
3. **Padlockable chain keeper** on guide. (Manual Chain operated.)
4. **Master keyable cylinder operable** from [coil side] [fascia side] [both sides] of opening, options for all types of operation. Provide interlock switches or motor mounted interlock switches.
 - a. Standard Mortise Cylinder
 - b. BEST 7-Pin
 - c. U-Change
 - d. Schlage

**** NOTE TO SPECIFIER **** Vision panels not available on perforated slats. Show number and placement on drawings. Minimum spacing is 2 inches (50.8 mm) apart, 12" (305 mm) in from guides. Delete below if not required.

- **Vision Panels:** 10 x 1-5/8 inch (254 x 41.28 mm) oval acrylic panes set with double sided foam glazing tape and secured with retaining clips and rivets. Refer to drawings for number and placement.
- **One-Way Vision Panels:** 10 x 1-5/8 inch (254 x 41.28 mm) oval mirror outboard lite panes set with double sided foam glazing tape and secured with retaining clips and rivets. Refer to drawings for number and placement.

**** NOTE TO SPECIFIER **** Pass doors with hinged frames are available. Consult the Architectural Design Support at (800) 233-8366 ext. 4551 for applicability. Delete below if not required.

D. **Pass Doors:** Hollow metal pass door and hinged frame available within a curtain. Also known as wicket door or man door.

****NOTE TO SPECIFIER**** Image requirements apply. Consult Architectural Design Support at (800) 233-8366 ext. 4551 for details. Delete below if not required.

E. **Graphics Door Image:**

1. **Decal Graphics:** [Flat face surface of door curtain slats] [hood] [fascia] [guides] [bottom bar] to include a factory applied [4] -color process, 2 mil thick vinyl graphic image, 3M[®] or equal. Graphic image to be selected and electronically supplied by customer. (No width limit; Max. height: 10 ft.)

****NOTE TO SPECIFIER**** Consult Architectural Design Support at (800) 233-8366 ext. 4551 for details. Delete below if not required.

F. **Sloped Bottom Bar (Pitch Plate):** Tapered to match slope of opening and accommodate for irregular floor conditions.

**** NOTE TO SPECIFIER **** Exposed operator components lower than 8' 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. Delete below is not required.

G. **Interior Aesthetic Covers:**

1. **Operator and Bracket Mechanism Cover:** [Galvanized steel] [Stainless steel] [Aluminum] sheet metal cover [to provide weather resistance] [to enclose exposed operating components] at coil area of unit. Finish matching hood.

**** NOTE TO SPECIFIER **** A Trim Package is custom-made to hide visible bolts, fasteners and other exposed hardware. Delete below if not required.

2. **Guide Trim Package:** [Powder coated steel to match guides] [Type 304 #4 finish brushed stainless steel].

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

• **Vibration Isolators:**

- 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.

• **LED Light Kit :**

- 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

- Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings
- Coordinate with responsible entity to perform corrective work on unsatisfactory substrates

C. Commencement of work by installer is acceptance of substrate

3.2 INSTALLATION

- Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports

B. Follow manufacturer's installation instructions

3.3 ADJUSTING

- 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

- Clean surfaces soiled by work as recommended by manufacturer

B. Remove surplus materials and debris from the site

3.5 DEMONSTRATION

- Demonstrate proper operation to Owner's Representative

B. Instruct Owner's Representative in maintenance procedures

END OF SECTION