

SECTION 08 34 19

ROLLING RUBBER INDUSTRIAL 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™, 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 THE SPECIFIER ARE CONTAINED IN BOXES AND SHOULD BE DELETED FROM FINAL COPY.

OPTIONAL ITEMS REQUIRING SELECTION BY THE 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, E.G.: _____.

OPTIONAL PARAGRAPHS ARE SEPARATED BY A REDLINED "OR," E.G.:

OR

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: [Manual] [and] [electric operated] overhead rolling rubber 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

INCLUDE APPROPRIATE LANGUAGE BELOW, INCLUDING A REFERENCE TO SECTION 01 23 00 ALTERNATES, IF ROLLING RUBBER DOORS ARE INCLUDED IN ANY ALTERNATES, ADD SECTION 01 23 00 TO 1.1 B. DELETE IF NO ALTERNATES.

D. Alternates:

1.2 SYSTEM DESCRIPTION

SPECIFICATION VALID FOR SIZES UP TO 35' x 25' or 25' x 30'

A. Design Requirements:

1. Wind Loading: Supply doors to withstand up to 20 PSF (957Pa) maximum wind load.

OR

OPERABLE WIND LOAD RATING VARIES BY DOOR SIZE; CONSULT CORNELL ARCHITECTURAL DESIGN SERVICES (800) 233-8366 EXT. 551 FOR RATINGS.

1. Wind Loading: Supply doors to withstand up to 20 PSF (957Pa) maximum wind load. Supply doors to operate under wind load with a [guide] [jamb] mounted wind bar.

FOR APPLICATIONS WITH EXPECTED CYCLES EXCEEDING 200,000; MODEL EPR-20: SPRINGLESS CYCLE DESIGN IS RECOMMENDED

100,000 AND 200,000 CYCLE SPRINGS AVAILABLE ON UNIT SIZES UP TO 20' x 20'. FOR 100,000 AND 200,000 CYCLE SPRINGS ON SIZES GREATER THAN 20' x 20', CONSULT CORNELL ARCHITECTURAL DESIGN SERVICES (800) 233-8366 EXT. 551.

2. Cycle Life:
 - a. Design doors of standard construction with a counterbalance spring rating of [50,000] [100,000] [200,000] cycles.

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 and installer qualifications - see 1.4 below.
 - b. 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. 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. Lifetime warranty on curtain, NEWGEN® Guide and CurtainLok™ system.
- 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 Iron Works, Inc., Crestwood Industrial Park, Mountaintop, PA 18707. Telephone: (800) 233-8366, Fax: (800) 526-0841. Underwriters Laboratories, Inc. (UL) Registered.

INSERT NAME, ADDRESS, AND PHONE NUMBERS OF LOCAL DISTRIBUTOR BELOW.

- 1. Distributor:
- B. Model: EPR10
- C. Substitutions: Reference Section 01 25 13 Product Substitution Procedures.

2.2 MATERIALS

- A. Curtain:
 - 1. Two (2) layers of black Styrene Butadiene Rubber (SBR) each 1/8” (3.2mm) thick, 70 durometer; sandwiched with 1-ply, 110 lbs. (50 kg) polyester cord center. Material provides normal resiliency and flexibility at temperatures ranging from -40° F - +180° F (-40° C - +85° C).

OR

- 1. Two (2) layers of [gray] [blue], corrosive resistant Ethylene Propylene Diene Monomer (EPDM) Rubber each 1/8” (3.2mm) thick, 70 durometer; sandwiched with 1-ply, 110 lbs. (50 kg) polyester cord center. Material provides normal resiliency and flexibility at temperatures ranging from -40° F - +180° F (-40° C - +85° C).

OR

- 1. Two (2) layers of black, flame retardant, self extinguishing MSHA rated Rubber each 1/8” (3.2mm) thick, 70 durometer; sandwiched with 1-ply, 110 lbs. (50 kg) polyester cord center. Material provides normal resiliency and flexibility at temperatures ranging from -40° F - +180° F (-40° C - +85° C).

OR

- 1. Two (2) layers of black, corrosive resistant Nitrile Rubber each 1/8” (3.2mm) thick, 70 durometer; sandwiched with 1-ply, 110 lbs. (50 kg) polyester cord center. Material provides normal resiliency and flexibility at temperatures ranging from -40° F - +180° F (-40° C - +85° C).

2. Bottom Bar: Constructed of two steel angles bolted together that extends the full width of the curtain and shall have knock-away section to reduce the risk of damage during accidental impacts. Knock-away section bottom bar to be reset without the need to open side frames. Finish: Xylene pre-treatment followed by a Durogloss SP491, CRM Alkyd Grey Primer; minimum of 1.5 mils cured film thickness followed by a corrosion resistant Durogloss, Industrial Enamel; minimum of 1.5 mils cured film thickness.
 3. Fabricate curtain with NEWGEN CurtainLoks that are mechanically secured with plated steel rolling thread screws. CurtainLoks retain curtain in guides under extreme wind load conditions. Continuous glued SBR windlocks or molded-in place Teflon windlock designs will not be accepted.
- B. Guides: Fabricate with NEWGEN one-piece extruded aluminum channels with a steel mounting angle or channel as recommended by door manufacturer. Aluminum channels are to be of sufficient thickness and rigidity to maintain the NEWGEN CurtainLoks within the guides during normal operation while enabling the NEWGEN CurtainLoks to release during impacts. Spring loaded guides will not be accepted.
1. Finish: Aluminum Channels: Mill finish – T6 6061
 Steel Mounting Angle: Xylene pre-treatment followed by a Durogloss SP491, CRM Alkyd Grey Primer; minimum of 1.5 mils cured film thickness followed by a corrosion resistant Durogloss, Industrial Enamel; minimum of 1.5 mils cured film thickness.
- C. Counterbalance Shaft Assembly:
1. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5mm per meter) of width. Both of the drive barrel shafts are to be constructed of a minimum 1 ½ inch (38mm) C1018 cold rolled steel shafts. Finish: Xylene pre-treatment followed by a Durogloss SP491, CRM Alkyd Grey Primer; minimum of 1.5 mils cured film thickness followed by a corrosion resistant Durogloss, Industrial Enamel; minimum of 1.5 mils cured film thickness. Shaft to be painted same color as curtain color with industrial enamel paint.

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2. Spring Balance: Oil-tempered, heat-treated steel helical outboard torsion spring assembly design.
 - a. Counterbalance springs to be rated for 50,000 cycles
 - OR
 - a. Counterbalance springs to be rated for 100,000 cycles
 - OR
 - a. Counterbalance springs to be rated for 200,000 cycles
- D. Idler Barrel: Fabricate from minimum 4 inch (102mm) O.D. round H.S.S structural tubing with a minimum thickness of .134 inch (3.4mm) supported by minimum 1 ¼ inch (32mm) C1018 Cold Rolled steel at both ends. Idler barrel to be guide mounted to ensure proper tracking of curtain into NEWGEN™ Guides. Finish: Xylene pre-treatment

followed by a Durogloss SP491, CRM Alkyd Grey Primer; minimum of 1.5 mils cured film thickness followed by a corrosion resistant Durogloss, Industrial Enamel; minimum of 1.5 mils cured film thickness. Barrel to be painted same color as curtain color with industrial enamel paint.

- E. Brackets: Fabricate from minimum 1/4 inch (6mm) hot rolled steel plate with sealed heavy-duty, self-aligning bearings with cast iron housings at rotating support points to support the shaft assembly and form end closures. Bearings shall be load rated at a minimum of 5600 lbs. (2540 kg) dynamic and 3360 lbs. (1524 kg) static load as recommended by door manufacturer. Welded truss shall brace brackets together at the top and bottom of the bracket with C3 x 4.1 channel and 2" x 1/4" (50.8 x 6.3mm) flatbar diagonal bracing or 2" x 4"x .188" (50.8 x 101.6 x 4.8mm) HSS and 2" x 1" x .125" (50.8 x 25.4 x 3.2mm) HSS diagonal bracing as recommended by door manufacturer.
 - 1. Finish:
 - a. Steel: Xylene pre-treatment followed by a Durogloss SP491, CRM Alkyd Grey Primer; minimum of 1.5 mils cured film thickness followed by a corrosion resistant Durogloss, Industrial Enamel; minimum of 1.5 mils cured film thickness.
- F. Weatherstripping:
 - 1. Bottom Bar: 1/8" (3.2mm) thick EPDM rubber loop extending full width of door bottom bar that must be replaceable without removing the bottom bar from the curtain.
 - 2. Guides: NEWGEN Guides and CurtainLok system provides near airtight seal.
 - 3. Idler Barrel: Provides superior header sealing that ensures complete engagement of the seal system by eliminating gaps between the curtain and the lintel seal.

HOODS ARE NOT NORMALLY PROVIDED FOR INTERIOR APPLICATION, DELETE HOOD BELOW IF NOT DESIRED.

- G. Hood: 18 gauge galvanized steel, unpainted.

2.3 ACCESSORIES

VISION PANELS ARE AVAILABLE (1) PER 5 FEET OF OPENING WIDTH, SHOW NUMBER AND PLACEMENT ON DRAWINGS. DELETE BELOW IF NOT REQUIRED.

- A. Vision Panels: 16" x 16" x .120" (406 x 406 x 3 mm) square PVC sheet. Refer to drawings for number and placement.

EXPOSED MOVING OPERATOR AND SPRING 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, BRACKET MECHANISM COVER AND SPRING COVER WHENEVER THIS FIELD CONDITION EXISTS.

- B. Operator [and Bracket Mechanism] Cover: Provide 18 gauge galvanized steel sheet metal cover to enclose exposed moving operating components at coil area of unit. Finish to match door hood.

- C. Spring Cover: Provide 18 gauge galvanized steel sheet metal cover to enclose exposed moving operating components at coil area of unit. Finish to match door hood.
- D. Guide Guards: Provide steel angle guards to protect the guides at a minimum height of 5' (1.5m). Finish: Xylene pre-treatment followed by a Durogloss SP491, CRM Alkyd Grey Primer; minimum of 1.5 mils cured film thickness followed by a corrosion resistant Durogloss, Industrial Enamel; minimum of 1.5 mils cured film thickness.

2.4 OPERATION

MANUAL HAND CHAIN AND RG OPERATOR LIMITED TO A MAXIMUM OPENING SIZE OF 20' X 20' (6m x 6m)

- A. Manual Chain Hoist: Provide chain hoist operator with sufficient capacity to operate a door with a maximum pull requirement of 20 to 30 lbs. (9 to 14 kg). The static load on the hand chain to hold the door in any position must not exceed 11 lbs. (5 kg).

OR

- A. Model RG, extra heavy duty, rated for 20 cycles per hour, CSA/UL approved operator, Totally Enclosed Fan Cooled gear head motor operating through an enclosed single reduction worm gear reducer mechanism, rated as recommended by door manufacturer for size and type of door, [460] [230] [575] [380] Volts, 3 Phase. Provide complete with electric motor and factory pre-wired number code control NEMA 1 rated cabinet, solenoid actuated brake, emergency manual chain hoist and control station. 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 and a maximum pull requirement of 20-30 lbs. (9 to 14 kg). The static load on the hand chain to hold the door in any position must not exceed 11 lbs (5 kg). Operator drive and door driven sprockets shall be provided with #50 or #60 roller chain as recommended by door manufacturer. Operator shall be capable of driving the door at a speed of up to 18 inches per second (46 cm/sec) based on door size. Fully adjustable, driven rotary screw type cam limit switch mechanism shall synchronize the operator with the door.

OR

- A. Model HG, high RPM, heavy duty, rated for an unlimited number of cycles per hour, CSA/UL approved, Totally Enclosed Fan Cooled gear head motor operating through a parallel helical gear reducer mechanism, rated as recommended by door manufacturer for size and type of door, [460] [230] [575] [380] Volts, 3 Phase. Provide complete with electric motor and factory pre-wired number code control panel (as specified below), high performance magnetic brake, emergency manual chain hoist 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 and a maximum pull requirement of 20-30 lbs. (9 to 14 kg). The static load on the hand chain to hold the door in any position must not exceed 11 lbs (5 kg). Operator drive and door driven sprockets shall be provided with #50, #60 or #80 roller chain. Operator shall be capable of driving the door at a speed of up to 60 inches per second (152 cm/sec) based on door size. Fully adjustable, driven rotary screw type

cam limit switch mechanism housed in a NEMA 4 limit box enclosure shall synchronize the operator with the door.

INVERTER DRIVE WITH SOFT START/SOFT STOP ONLY AVAILABLE WITH HG OPERATOR AND LIMITED TO A MAXIMUM OPENING SIZE OF 20' X 20' (6m x 6m)

1. Drive System: Standard drive system for applications that require operating speeds up to 30" per second (76 cm/sec).
2. Control Panel: Drive system shall be controlled by Relay Logic in an [operator mounted control box without cycle counter] [operator mounted control box with cycle counter][wall mounted control box with cycle counter] with wiring completed by the manufacturer. Panel enclosure to be rated [NEMA 1] [NEMA 4] [NEMA 4X].

OR

2. Control Panel: Drive system to be controlled Programmable Logic Controller (PLC) wall mounted control box with wiring completed by the manufacturer. Panel enclosure to be rated [NEMA 4] [NEMA 4X]. Control panel shall have fused primary power, adjustable closing timer, three (3) button push button stations for open, close and stop functions, push/pull mushroom button E-stop and cycle counter. 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.

OR 1 & 2

1. Drive System: Inverter (variable frequency) drive with soft start and soft stop. Inverter drive required for applications with operating speed in excess of 40" per second.
2. Control Panel: Drive system to be controlled Programmable Logic Controller (PLC) wall mounted control box with wiring completed by the manufacturer. Panel enclosure to be rated [NEMA 4] [NEMA 4X]. Control panel shall have fused primary power, adjustable closing timer, three (3) button push button stations for open, close and stop functions, push/pull mushroom button E-stop and cycle counter. 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.

MOST COMMON CONTROL STATIONS ARE LISTED BELOW; CONSULT CORNELL ARCHITECTURAL DESIGN SERVICES (800) 233-8366 EXT. 551 FOR OTHER OPTIONS.

1. Control Station: Surface mounted, "Open/Close/Stop" push buttons; NEMA 4.

OR

1. Control Station: Surface mounted, "Open/Close" push buttons; NEMA 4, Keyed.

OR

1. Control Station: Flush mounted, "Open/Close/Stop" push buttons; NEMA 4X.

OR

1. Control Station: Surface mounted, "Open/Close/Stop" push buttons; NEMA 4X, Keyed.

- B. Sensing Edge: Provide automatic reversing control by an automatic sensing switch.
 1. Provide an [airwave] [electric] sensing edge device within a 1/8" (3.2mm) EPDM rubber astragal extending full width of door bottom bar with an auxiliary frame mounted thru-beam photoelectric sensor. 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.

OR

1. Provide an [airwave] [electric] sensing edge device within a 1/8" (3.2mm) EPDM rubber astragal extending full width of door bottom bar with an auxiliary frame mounted thru-beam photoelectric sensor. Contact before door 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.

OR 1 & 2

1. Provide an [airwave] [electric] sensing edge device within a 1/8" (3.2mm) EPDM rubber astragal 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 [self-coiling cable] [retracting safety cord and reel] connection to control circuit.
2. Provide a light curtain sensing device that contains a self-contained transmitter detector and receiver detector. Light curtain to be a minimum of 6.5' (2m) in height with a minimum of 40 channels with spacing not to exceed 1.81" (46 mm). A break in a beam shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Light curtain to include "blinking" functionality to ensure that the system can distinguish between the closing door and an object by ignoring the beams that are interrupted by the moving door while leaving the remaining beams active to detect an object in the protection area.

OR 1 & 2

1. Provide an [airwave] [electric] sensing edge device within a 1/8" (3.2mm) EPDM rubber astragal 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 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. Provide a light curtain sensing device that contains a self-contained transmitter detector and receiver detector. Light curtain to be a minimum of 6.5' (2m) in height with a minimum of 40 channels with spacing not to exceed 1.81" (46 mm). A break in a beam shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Light curtain to include "blinking" functionality to ensure that the system can distinguish between the closing door and an object by ignoring the beams that are interrupted by the moving door while leaving the remaining beams active to detect an object in the protection area.

PART 3 EXECUTION

3.1 EXAMINATION

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

C. Commencement of work by installer is acceptance of substrate.

3.2 INSTALLATION

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

B. Follow manufacturer's installation instructions.

3.3 ADJUSTING

A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.4 CLEANING

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

B. Remove surplus materials and debris from the site.

3.5 DEMONSTRATION

A. Demonstrate proper operation to Owner's Representative.

B. Instruct Owner's Representative in maintenance procedures.

END OF SECTION