

SPEED-MASTER® 2600 L

Section 08 33 23.13 OVERHEAD RAPID COILING DOORS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. This Section includes the following types of Overhead Rapid Coiling Doors:
 - 1. High-speed, overhead fabric coiling door assemblies, at interior and limited exterior applications.
 - 2. Operators (motors), control devices, guide tracks, hoods, closures, accessories, and wiring from electric circuit disconnect to operator to control device.

1.02 RELATED SPECIFICATIONS

- A. Refer to Door, Frame and Hardware Schedules, related detail drawings, including jamb, head and thresholds as indicated on the Drawings for locations, quantities, and remarks.
- B. Section 05 10 00 – Structural Metal Framing
- C. Section 08 00 00 – Openings
- D. Section 10 14 00 – Signage
- E. Section 26 00 00 – Electrical
- F. Section 28 10 00 – Access Control
- G. Section 32 39 00 – Manufactured Site Specialties (Bollards)

1.03 REFERENCES

- 1. NEMA - National Electrical Manufacturers Association.
- 2. UL – Underwriters Laboratory Incorporated.

1.04 DEFINITIONS

- A. Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

1.05 PERFORMANCE REQUIREMENTS

- A. Structural Performance Requirements: Provide overhead rapid coiling door assemblies capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of the door components:
 - 1. Wind Load: Uniform pressure (velocity pressure) of 31.5 lbf/sq. ft., or 110 mph, acting inward and outward.
 - 2. Design of overhead rapid coiling door panel hinge to be constructed of aluminum and have circular profile diameter of 34mm. Products not including this design feature will not be accepted.
- B. Operation-Cycle Requirements: Design overhead rapid coiling door materials and workmanship to act for a period of 5 full years minimum, and all other mechanical and electrical components for a period of 2 full years minimum, but not less than 750,000 cycles and for 400 cycles per day. Products not meeting a 5 /2-year warranty will not be accepted.

- C. Safety Performance Requirements: Provide overhead rapid coiling door assemblies with Light Curtain systems, to be fully housed inside of guide tracks and shall allow the door to close normally but shall reverse the door if any obstruction breaks the light beam grid. Products not including this technology will not be accepted.
- D. Control Device Requirements: Provide overhead rapid coiling door assemblies capable of plug-and-play or Smart Start™ electrical connection to simplify installation. Products not including this design feature will not be accepted.

1.06 SUBMITTALS

- A. Product Data: For each type and size of overhead rapid coiling door and accessory, include 3 set(s) details of construction relative to materials, dimensions, component connections, profiles and finishes. Provide rough-in diagrams, operating instructions and maintenance information. Include the following:
 - 1. Setting Drawings, templates, and installation instructions for built-in or embedded anchor devices.
 - 2. Summary of forces and loads on walls and jambs.
 - 3. Motors: Show nameplate data and ratings.
- B. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details and include information for special components and installations not dimensioned or detailed in manufacturers data sheets.
 - 1. Wiring Diagrams: Detail wiring for power, signal, and control systems. Differentiate between manufacturer -installed and field-installed wiring and components provided by the door manufacturer and those provided by others.
 - 2. Include design drawings fully detailing each door assembly; indicate size, clearances, and load diagrams, construction details for head, jambs, and threshold; material types, sizes, shapes, thicknesses, joints and connections; hardware, horsepower, voltage, phase, and hertz; location of control devices and drive units; and all design and detail data for work of other trades affected by the installation of overhead rapid coiling doors.
- C. Samples: Submit 1 set(s) of sample door materials, made available upon request to the owner's representative, and Architect.
- D. Manufacturer's Installation: Overhead rapid coiling door manufacturer shall indicate installation sequences, procedures, adjustments, and alignment procedures in written form.

1.07 QUALITY ASSURANCE

- A. Maintenance Data: Follow and comply fully with manufacturer's scheduled maintenance program, including periodic required adjustments, suggested maintenance intervals, and retention of manufacturer's data sheets, and equipment inter-connection diagrams.
- B. Installer Qualifications: Engage experienced installers having demonstrated successful application on projects of similar scope and complexities for both installation and maintenance of units required for this project. Installers should be trained and authorized by the overhead rapid coiling door manufacturer to perform the work of this section.
- C. Source Limitations: Obtain overhead rapid coiling doors, including all components and accessories though one source from a single manufacturer. Use only new doors, components and accessories for this project.
 - 1. Obtain operators and controls from the overhead rapid coiling door manufacturer.
- D. Regulatory Requirements: Listing and labeling shall be provided for electrically operated fixtures specified in this section.
 - 1. The terms "Listed" and "Labeled": as defined in NFPA 70, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.
 - 3. Electrical door components shall be UL Listed.
 - 4. Electrical control devices shall be NEMA 4 approved.
- E. Field Measurements: Verify field measurements are as indicated on shop drawings prior to beginning fabrication. Verify power supply conforms with overhead rapid coiling door electrical requirements prior to fabrication.
- F. Coordination: Coordinate the work with installation of electrical power locations, and sizes of conduit.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Delivery of materials shall be in original rolls, packages, boxes or crates bearing the manufacturer's name, brand, model number, and installation location. Store all materials in dry locations with adequate ventilation, free from dust and water, and available for inspection and handling. Handle doors carefully to prevent damage. Remove damaged items that cannot be restored to the acceptance of the owner's representative and Architect, and replace with new items.

1.09 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer and installer agree to repair or replace overhead rapid coiling door assemblies, components, and accessories that fail in materials or workmanship within specified warranty periods.
1. Warranty Period: Provide the following:
 - a. The motor is guaranteed against defects in materials and workmanship for a period of 5 full years (excludes catch system). All other mechanical and electrical components are warranted against defects for a period of 2 full years. Products with less than a 5/2-year warranty will not be accepted. During the warranty period, labor is covered for the first year.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide overhead rapid coiling door assemblies as manufactured by the following:

Acceptable Manufacturers: Hörmann High Performance Doors:

1. Manufacturer of Overhead Rapid Coiling Doors: Hörmann Flexon LLC,
Starpointe Business Park, 117 Starpointe Boulevard, Burgettstown, PA 15021-9506
Phone: (800)-365-3667 / 770-380-0489
Fax: (724) 385-9151
Website: www.hormann-flexon.com / Email: sales@hormann-flexon.com

- B. Selected Products: Provide the following:

1. Model: Speed-Master[®] Series – Model 2600 L. No substitutions or exceptions shall be approved.

2.02 MATERIALS AND CONSTRUCTION

A. Guide Tracks

1. Fabricate jamb guides to be constructed with the manufacturers standard heavy-duty breakaway style windlock and guide system and arranged to meet the specified performance criteria; allowing door panels to operate smoothly as follows:
 - a. Vertical guide tracks must be a one-piece design with removable front covers and the following dimensions: 9-1/4" wide X 7-1/8" projection.
 - b. Guide tracks must be self-supporting, 12 gauge hot-dipped galvanized steel and include a light grid built in up to 8'0" high. Lighter gauge guide tracks will not be accepted.
 - c. Exterior Mounted doors to include full roll and motor cover to be made of stainless steel, finish to match guide tracks.
 - d. Exterior and high pressure doors to include windlocks.

B. Light Curtain

1. Safety Systems: Provide the following without exceptions:
 - a. Light grid up to 8'0" is standard and built into the guide tracks. The light curtain system shall consist of a self-contained transmitter detector and receiver detector. The transmitter and receiver are positioned on opposite sides of the door opening. The range can accommodate door openings from 3' up to 32'. The detectors are housed in an aluminum profile which is weather resistant with an IP 67 (occasional submersion) rating. The sensitivity automatically adjusts which compensates for misalignment and contamination during operation. No onsite set up or adjustments are required.
 - b. The light curtain system shall be installed inside the guide tracks and allow the door to close normally but reverse the door if any object breaks the light beam. Photo cell and electric reversing edges not acceptable.

C. Door Headers, Roll Tubes and Bearing Mechanisms

1. Headers: Provide the following Header assemblies:
 - a. Roll Tubes: Provide 6" diameter high strength steel roll tubes, with a minimum 0.188 inch wall thickness, complying with ASTM A 513. Roll Tube deflection shall be limited to 0.01 inches per foot, and shall not exceed 0.14 inches over entire length. Provide 2-inch diameter steel drive barrel shafts complying with ASTM C 1045.
 - b. Top Plates: Manufacturers standard 1/8" thick hot rolled steel plates fitted with heavy-duty, self-aligning bearings and cast iron housings. Two-inch shaft bearings shall be rated at 10,800 lbs. dynamic and 6,400 lbs. static.

D. Counterbalance Assemblies

1. Do not provide the following:
 - a. Door shall require no counter-balance or panel tensioning system requiring cables, chains, straps, springs, or pulleys are to be included. No exceptions shall be accepted.

E. Weather Seals

1. Provide the following manufacturers standard assemblies:
 - a. Twin brush seals must be provided for within the guide tracks.
 - b. Lintel brush seal shall be provided for the full width of the top of the door.
 - c. A vinyl loop seal shall be provided for the bottom of the door to ensure close fit with uneven floors.

F. Door Panel

1. Fabricate overhead rapid coiling door panels of heavy-duty materials with reinforcing, designed to withstand wind loading indicated, in a continuous length for width of each door opening (without splices). Unless otherwise indicated provide panel material thickness recommended by door manufacturer for performance, size, and type of door indicated, as follows:
 - a. Panel material to be 2-ply 90 oz. / sq. yard, abrasion resistant reinforced PVC. Material to maintain flexibility and stability from -20 degrees F to +120 degrees F. Color: Agate Gray RAL 7038. Lighter weight, single ply, polyurethane or rubber panels will not be accepted. Use Commander Panel material unless otherwise noted.
 - b. Windows: Provide one (1) panel section to be manufacturers standard, high quality, clear PVC material by the full width of opening and of appropriate height off floor to accommodate vision for both pedestrian and vehicular traffic. Provide windows as indicated on drawings.
 - c. Each panel shall be of sectional design using, 1¼" X 1¾" circular aluminum tube profiles. No substitutions shall be accepted.
 - d. Profiles to serve as panel stabilizers, of sufficient number to accommodate existing conditions and shall be an integral part of panel construction resisting all specified wind loads.
 - e. Windlocks: Provide malleable-iron castings galvanized after fabrication, with nylon rollers, and secured to fabric panels with stainless steel fasteners. Provide windlocks designed for exterior or heavy negative pressure applications and lateral movement in accordance with the approved shop drawings.
 - f. Bottom Profile: Provide bottom profile consisting of aluminum sections. Assembly must be designed and fabricated with the manufacturers break away construction from the guide tracks in the event of impact. Provide a 1 and a half inch replaceable, self-adjusting, continuous, compressible gasket of flexible EPDM weatherproofing loop. Do not provide fail-safe type automatic reversing edge mechanism in bottom profile.

G. Drive System, Electric Door Operators

1. Provide heavy-duty electric door operator assemblies of size and capacity recommended and provided by the overhead rapid coiling door manufacturer for each door and its operating life specified, with electric motor and factory prewired motor control devices, starter, gear reduction unit, solenoid-operated break, clutch, remote-control stations, integral worm-gear and accessories for proper operation; as follows:
 - a. Drive unit shall be electrically operated, and equipped with a minimum 3-phase variable speed direct-drive motor of continuous duty and have positive brake release for manual override operation. The motor and gearbox shall be designed for high cycle operation. Door position shall be controlled by top and bottom limit switch. Basic operation features manual disengagement buttons to place door in manual operation mode. A safety disengagement push button shall be included with the disengagement

- mechanism. Drive assembly shall include back up safety top and bottom limits. Other basic operating features shall include inverter for soft start and stopping, automatic closing timer, emergency stop, one actuating push button.
- b. Main roller assembly shall be spin tested. Ball bearings to be permanently lubricated type with drive shaft keyed directly into unitized motor/gearbox.
 - c. Drive system shall be fully NEMA 4 and NFPA 70 Class 2 control circuit, compliant.
2. Electric Motors: Provide the following:
 - a. Provide high starting torque, reversible, continuous duty, Class A insulated, 2 HP, two-speed electric motors, complying with NEMA MG 1, with overload protection, sized to start, accelerate, and operate the door in either direction, from any position, at not less than the following speeds; without exceeding nameplate ratings or considering service factor.
 - a. Speed: Opening speed shall be up to 36" per second for Speed Master® 1600XL, unless otherwise acceptable to the commissioning party.
 - b. Type: 3 Phase, 60Hz, 9.9amps; Voltage as recommended by the manufacturer.
 - c. Service Factor: According to NEMA MG 1, unless otherwise indicated.
 - d. Coordinate wiring requirements and electrical characteristics of motors with building electrical system.
 3. Remote Control Station: Provide momentary contact 2 button control stations with push buttons labeled "Open" and "Close" at remote locations to be surface mounted as indicated on drawings and schedules.
 4. Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
 5. Control Panels: Provide the manufacturer's standard drive controller assemblies. Assemblies shall be a fully programmable logic type controller. Control Panels shall be pre-wired to the greatest extent possible, and be ULC listed. Control Panels shall accommodate soft/hard start ability. Control Panels shall allow for top and bottom limit adjustment via the control panel. Control Panels shall include an adjustable, automatic closing timer, emergency stop, one actuating push button and cycle counter.
- H. Emergency Operation / Disconnect Device:
1. Emergency operation shall be via manual disconnect of power to the motor and chain hoist for manual opening of the door. Hand crank operation will not be acceptable. Provide hand-operated disconnect or mechanism for automatically engaging sprocket-chain operator and releasing brake for emergency manual operation while disconnecting motor, without affecting timing of limit switch. Mount disconnect and operator so they are accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
- I. Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator.
- J. Door Control Devices
1. Control Panel: Provide the overhead rapid coiling door controls as specified herein, as scheduled in related specification sections, and as indicated on the drawings. Coordinate the installation, and interface of these controls with any relevant trades.
 - a. Provide a manufacturer supplied controller, mounted as shown, which will control the door, one per door. The controller shall include all opening and closing logic, including all safety related logic. Language interface shall be English.
 - b. The controller shall include front panel mounted items; open and close push buttons, emergency stop push button, reset buttons and power disconnect lever.
 - c. Supply manufacturer's standard HFCB hardwired Smart Start™ control box with a 208-230v or 440-480v / 3-phase / 60 HZ requirement. Doors with contactor boxes will not be accepted.
 - d. Provide additional unit controls whereas indicated on door and hardware schedules.
 - e. Control Panel to be equipped with a programmable drive system, with variable Speed operation, and includes soft opening and closing.
 - f. Must include an adjustable time delay.
 - g. Must include cycle counter.
 - h. Must include self-monitoring and self-diagnostic features and LCD to provide quick and straightforward information.
 - i. Control panels that require a portable computer unit, additional components or other devices for programming and/or troubleshooting will not be accepted.
 - j. Maximum control box dimensions of 8" wide x 16" high x 7" deep allowing for applications with limited space.

- k. Door to use encoder to regulate door travel limits. Door limits to be adjustable without the use of tools from floor level at the control panel. Doors using mechanical limits switches or doors that require tools to set the limits will not be accepted.
- l. Actuation by motion detector or pull cord per door schedule.
- m. Interior doors include Amber LED warning light.
- n. Mount actuating control devices in compliance with any applicable accessibility codes and regulations in the jurisdiction having authority, including any required audible alarms and visual indicator lights.

K. Activation Devices

- 1. Object Detection: Provide the following activations (per door, see Door and Hardware Schedules for locations, quantities and types.)
 - a. Object detection and door activation shall be a radar motion sensor system and shall include standoff mounting brackets, and associated radar remote controls.
 - b. Manufacturer recommends BEA Industrial, model Falcon. See related specification section and included product cut sheet for further detail.
 - c. Overhead rapid coiling doors to be ready to receive compatible security radio frequency (RF) activation card reading devices. Refer to Door and Hardware schedule, Drawings for locations, quantities, types. Refer to related specification sections for further detail.

2.03 HOODS AND ACCESSORIES

- A. Hood: Form to entirely enclose coiled fabric curtain and operating mechanism at opening head and act as weather stop. Contour to suit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Provide closed ends for surface mounted hoods and fascia for any portion of between jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag.
 - 1. Fabricate hoods of stainless steel or hot-dipped galvanized steel sheet, Type 316, complying with ASTM A 240 or ASTM A 666, and not less than 0.025-inch thick.
 - 2. Shape as indicated on drawings. See Door and Hardware schedule for locations, quantities, and sizes.

2.04 FINISHES, GENERAL

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. All components of overhead rapid coiling doors shall be factory finished.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples submitted. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples submitted and are assembled or installed to minimize contrast.

PART 3 – EXECUTION

3.01. PREPARATION

- A. Coordinate installation of overhead rapid coiling doors with other trades prior to commencement of work. Examine the conditions under which the doors are to be installed and do not proceed with the work until unsatisfactory conditions have been corrected.

3.02. INSTALLATION

- A. General: Comply with manufacturer's detailed written instructions for the installation of overhead rapid coiling doors.
 - 1. All relevant electrical field wiring to be performed by registered electricians experienced, trained and qualified to perform the work.
 - 2. Install doors true, level, and plumb, without evident warping, twisting, bending, or excessive abrasion.
 - 3. Handle all materials with care. Should there be any damage to components during installation, do not attempt to rectify or otherwise reuse damaged parts without express approval from the manufacturer. Failure to do so may result in voiding of product warranties.
 - 4. Install doors and operating equipment complete with necessary hardware, jamb and head molding strips, anchors, inserts, spacers, leveling shims, hangers, and equipment supports according to the approved Shop Drawings, manufacturer's written instructions, and as specified in this project manual.

C. FINAL ADJUSTMENT

- A. Make necessary adjustments for safe, efficient operation of overhead rapid coiling doors.
1. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, or distortion and fitting weather-tight for entire perimeter of opening.

3.03 DEMONSTRATION AND TRAINING

- A. Start-up Services: Engage a factory-authorized service representative to perform start-up services and to train facilities maintenance personnel as specified below:
1. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 2. Train designated personnel on procedures and schedules related to start-up and shutdown, troubleshooting, servicing, preventative maintenance, and procedures for testing and resetting release devices.
 3. Review data in the maintenance manuals. Refer to related sections regarding project closeout, and operation and maintenance manuals.
 4. Schedule training with personnel with at least 7 days' advance notice.

- END OF SECTION -