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SECTION 08 33 23.13

OVERHEAD RAPID COILING DOORS

# PART 1 – GENERAL

## SUMMARY

* 1. Section includes high-speed, rigid overhead coiling doors, activation devices and accessories.

## ADMINISTRATIVE REQUIREMENTS

* 1. Coordination: Verify the work of this Section with project conditions for compliance with Contract Documents. Coordinate overhead rapid coiling door’s operating controls with activation devices and specified accessories.

## ACTION SUBMITTALS

* 1. See Section 01 30 00 – Administrative Requirements for submittal procedures.
  2. Product Data: For each type and size of overhead rapid coiling door, activation device, and accessory, include detailed information of fabricated materials and finishes, wind load resistance, and electrical component connections.
  3. Shop Drawings: Indicate pertinent dimensioning, component profiles, and anchorage locations for verification of proper fit and mounting. Include Setting Drawings and templates, with locations for built-in or embedded anchoring devices, a summary of forces, loads and weights on walls and jambs and the Manufacturer’s Installation & Maintenance Manual – English.
  4. Samples: Upon request of the Architect or owner’s representative, submit 1 set(s) rigid door panel material for each panel type option selected. Sample sizes to be no smaller than 12” (305mm) long, 6” (152mm) x 6” (152mm), or full size as appropriate to materials.
  5. Sustainable Design Submittals: Upon request, submit product qualification materials from manufacturer in accordance with Green Building Certification Programs required documentation.

## QUALITY ASSURANCE

* 1. Regulatory Agency Approvals: Items requiring electrical connection in this section shall be listed and classified by UL/ULC or testing firm acceptable to Authorities Having Jurisdiction as suitable for purpose specified.
  2. Qualifications:
     1. Suppliers: Obtain overhead rapid coiling doors, including all components and accessories though one source. Use only new doors, components, and accessories for this project.
     2. Installers: Engage companies specializing in performing work of the type specified in this section and authorized by manufacturer.

## DELIVERY, STORAGE AND HANDLING

* 1. Delivery and Acceptance Requirements: Verify completeness of shipment upon receipt of materials. Confirm delivery of all component parts with original shipping manifest.
  2. Storage and Handling Requirements: Store all materials in dry locations with adequate ventilation, free from dust, water, and available for inspection and handling.

## WARRANTY

* 1. See Section 01 78 00 – Closeout Submittals for additional warranty requirements.
  2. Warranty Documentation: Provide a final executed warranty document as accepted by Owner; include in Warranties and Bonds Manual.
  3. Warranty Period: Period of warranty begins at date of shipment of the product to the customer. The motor is guaranteed against defects in materials and workmanship for a period of 5 years (excludes anti-fallback device). All other mechanical and electrical components are warranted against defects for a period of 2 years. Insulated panels are warranted against defects for a period of 5 years. Vision/Ventilated panels are warranted against defects for a period of 7 years. During the warranty period, labor is covered for the first year after installation is completed.

# PART 2 – PRODUCTS

1. MANUFACTURERS
   1. Hörmann High Performance Doors.

117 Starpointe Boulevard, Burgettstown, Pennsylvania 15021-9506

Toll Free: (800)-365-3667 | Phone: 724-385-9150

Website: www.hormann.us | Contact Email Address: info2@hormann.us

* 1. Products Options: Provide the following as to be considered the basis of design:
     1. High Performance Door Model: Speed-Guardian™ Series – Model 5000 C U 42.
  2. Substitution Limitations:
     1. No substitutions or exceptions shall be approved.

1. PERFORMANCE REQUIREMENTS
   1. Structural Performance Requirements: Provide door assemblies capable of withstanding gravity loads and stresses without permanent deformation of the door components.
      1. Resistance to Wind Load: Uniform pressure (velocity pressure) acting inward (pressure) and outward (suction) of wind acting normal to plane of wall as determined in accordance with ASTM E330-02, FBC-TAS 202-94, or ANSI/DASMA 108-2012, Exposure B:
         1. Door widths up to 16’- 4” (5.0 m): 21.0 psf. (1,006 Pa); Wind Load Class 5; 115 mph (185 km/h).
         2. Door widths 16’- 4” to 19’- 8” (5.0 to 6.0 m): 15.0 psf. (718 Pa); Wind Load Class 4; 100 mph (161 km/h).
         3. Door widths greater than 19’- 8” (6.0 m): 7.0 psf. (335 Pa); Wind Load Class 2; 70 mph (113 km/h).
   2. Operation-Speed Requirements: Open cycle performing up-to 80 in./sec. (2. m/s) and close cycle performing at up-to 20 in./sec. (0.5 m/s).
   3. Operation-Cycle Requirements: Acting for not less than 1,000,000 total cycles.
   4. Headroom Clearance Requirements: Door openings up to 14’- 9” (4.5 m) high, HR = 36-¼” (920.0 mm), door openings 14’- 9” to 18’- 0” (4.5 to 5.5 m) high, HR = 37-⅝” (956.0 mm), or door openings greater than 18’- 0” (5.5 m) high, HR = 41-½” (1.0 m). Doors with Hood Enclosure option, include additional 1-⅝” (40 mm).
   5. Thermal Resistance (R-value) of Door Curtain Material Requirements: No less than R 13.6 (ft2 x ℉ x h)/BTU for solid panels.
   6. Heat Transfer Coefficient (U-value) Requirements: No greater than U 1.04 W/(m2 x K) for complete door assembly (solid panels only).
   7. Resistance to Air Infiltration (Air Leakage) Requirements: No greater than 0.6 CFM/ ft2 at panel joints.
   8. Resistance to Water Penetration Requirements: No less than Class 2, 15 minutes water spray at 55 Pa differential at panel joints.
   9. Solar Heat Gain Coefficient (G-value) of Door Curtain Vision Material Requirements: No less than G 0.74 for transparent panels.
   10. Visible Transmittance (Tvis) of Door Curtain Vision Material Requirements: No less than Tvis 0.77 for transparent panels.
   11. Acoustic Attenuation (STC) Requirements: No less than STC 26, Rw 22 dB for complete door assembly.
2. OPERATION
   1. Electric Door Operator (Drive System): 2 Horsepower variable speed motor capable of gradual acceleration and braking.
   2. Door Control Devices: One (manufacturer supplied) Control Panel per unit, required.

[SELECT FROM THE FOLLOWING CONTROL PANELS, DELETE THOSE NOT REQUIRED]

* + 1. **(Standard Equipment)** Control Panel: Three-Phase Model: Hörmann AK500FUE-1 Smart Start™ NXT with Plug & Play wiring. Housing (W x H x D): 11-⅝” x 5-¾” x 8-⅛” (295 x 400 x 208 mm). NEMA Type 4X / IP66 compliant, UL/cUL listed. Supply Voltage (from Electrical Disconnect): 3-Phase, 208 vAC to 575 vAC, 60 Hz, 20 Amp Class CC fuse. Control Panel Weight: 16 lbs. (7.25 kg).

**[SELECT FROM THE FOLLOWING CONTROL PANEL FINISHES, DELETE THOSE NOT REQUIRED]**

* + - 1. **(Standard Finish)** Finish: Polyester Powder Coat Painted, baked-on steel. Color RAL 7035 Light Grey, all surfaces.
      2. **(Optional Finish)** Finish: 316 Stainless Steel, polished, all surfaces.
    1. **(Optional Equipment)** Control Panel: UL/CUL Single-Phase Model: Hörmann AK500FUE-1 Smart Start™ NXT with Plug & Play wiring. Housing (W x H x D): 11-⅝” x 5-¾” x 8-⅛” (295 x 400 x 208 mm). Polyester powder coat paint, baked-on steel, Color RAL 7035 Light Grey, all surfaces. NEMA Type 4X / IP66 compliant, UL/cUL listed. Supply Voltage (from Electrical Disconnect): 1-Phase, 230 vAC, 60 Hz, 20 Amp Class CC fuse. Control Panel Weight: 16 lbs. (7.25 kg).
    2. **(Optional Equipment)** Control Panel: Heated Three-Phase Model: Hörmann XL49819 Smart Start™ NXT with Plug & Play wiring. Housing (W x H x D): 15-¾” x 23-⅝” x 7-⅞” (400 x 600 x 200 mm). NEMA Type 4X / IP66 compliant, UL/cUL listed. Supply Voltage (from Electrical Disconnect): 3-Phase, 208 vAC to 575 vAC, 60 Hz, 20 Amp Class CC fuse. Control Panel Weight: 16 lbs. (7.25 kg).

**[SELECT FROM THE FOLLOWING OPTIONAL HEATED CONTROL PANEL FINISHES, DELETE THOSE NOT REQUIRED]**

* + - 1. **(Standard Finish)** Finish: Polyester Powder Coat Painted, baked-on steel. Color RAL 7035 Light Grey, all surfaces.
      2. **(Optional Finish)** Finish: 316 Stainless Steel, polished, all surfaces.
  1. Activation Devices: Provide door activations as noted on Door and Hardware Schedules including locations, quantities, and types and in coordination with Section 08 71 13 – Automatic Door Operators.
     1. Manufacturer Recommended Door Activation Device: BEA, Inc.: LZR®-WIDESCAN, Motion, Presence & Safety Sensor. Quantity: Two (2). Mounting Extension Bracket. Quantity: One (1).
     2. **[EDIT TO INCLUDE AS REQUIRED]** **(Optional Equipment)** Other Door Activation Devices:Triple Push Button Control: MMTC, Inc.: 3BXL, NEMA 4 Exterior Three-button with Lockout - Surface Mounted Control Station. Integrated keyed lockout. NEMA Type 4 rated. Triangular button pattern configuration.
  2. Emergency Operation / Disconnect Device: Provide one Electrical Disconnect Device (switch) (not supplied by manufacturer) for each overhead rapid coiling door installed. Emergency manual operation via disconnect of power to the motor and chain hoist. Hand crank operation not accepted.

1. MATERIALS
   1. Top Assembly Components:
      1. Spiral Guides, Mounting Brackets (1 Pair): Provide one non-contact galvanized spiral panel guide and mounting bracket per each jamb. Panel wheel guides shall be aluminum.
      2. Top/Bottom Spiral Support Channels: Provide one top and one bottom 11-gauge galvanized steel spiral support channel(s).
      3. Motor Bracket: One motor bracket at the operator side of the door shall be provided.
      4. Drive Shaft: Provide one drive shaft, to be fabricated of galvanized cold rolled steel, 1-½” (38.0 mm) diameter.
      5. Drive Shaft Support: Doors up to an opening width of 11’- 6” (3.5 m) and to 16’- 5” (5.0 m) shall have one drive shaft support. Doors greater than 16’- 5” (5.0 m) shall have two drive shaft supports spaced at equal thirds across the door opening width. Drive Shaft Support(s) are installed on the interior face of the host wall at the door head 28”- 30” (711-762 mm) above the door opening.
      6. Top Assembly Component Finishes: **[SELECT FROM THE FOLLOWING TOP ASSEMBLY FINISHES, DELETE THOSE NOT REQUIRED]**
         1. **(Standard Finish)** Finish: Galvanized steel, zinc, class G90 (Spiral Guides, Mounting Brackets, Top/Bottom Spiral Support Channels, Motor Bracket).
         2. **(Optional Finish)** Finish: Polyester Powder Coat Painted, baked-on steel. Color selected from manufacturer’s standard color range, RAL Classic Color System, (Spiral Guides, Mounting Brackets, Top/Bottom Spiral Support Channels, Motor Bracket).
   2. Guide Tracks: Fabricated jamb guides constructed with Manufacturer’s standard heavy-duty materials arranged with a continuous, vertical oriented, one-piece design and removable front covers to meet specified performance criteria; allowing door panels to operate smoothly.
      1. Guide Tracks Finish: **[SELECT FROM THE FOLLOWING GUIDE TRACKS FINISHES, DELETE THOSE NOT REQUIRED]**
         1. **(Standard Finish)** Finish: Galvanized steel, zinc, class G90 (Tracks & Removable Front Covers).
         2. **(Optional Finish)** Finish: Polyester Powder Coat Painted, baked-on steel. Color selected from manufacturer’s standard color range, RAL Classic Color System, (Tracks & Removable Front Covers).
   3. Door Curtain Seals: Twin black, PVC brush seals at throat of the guide tracks, with one Lintel seal for the full width of the top of the door, vinyl-loop style. Color: Black. Bottom Panel: Rubber, field serviceable seal for the Bottom Profile Panel of the door to ensure close fit with uneven thresholds and floors, Color: Black.
   4. Entrapment Protection Equipment: In-line Light Curtain System installed within Guide Tracks in compliance with UL 325 Standard for Safety, Door, Drapery, Gate, Louver, and Window Operators and Systems. Photoelectric sensors and electric reversing edges shall not be accepted as primary entrapment protection equipment.
   5. Door Curtain Counterbalance Assemblies: To vary by door size. Up-to eight counter-balance oil tempered helical extension springs, housed in guide tracks supporting the curtain. Springs shall assist motor in operation of door. Two nylon straps, and two pulleys may also be required in the counterbalance system based upon the design of each door opening size. Doors using torsion springs for counterbalance or doors with springs within a barrel sleeve will not be accepted.
   6. Door Curtain Panels: Refer to Drawings for intended panel configurations, types, and options. Product Door Panels to consist of heavy-duty materials, designed to withstand wind loading indicated, in a continuous length for width of each door opening (without splices).
      1. Insulated Panel(s): Interlocking flat-faced insulated steel panels, with neoprene rubber thermal break at panel joints (tops). Factory Material Textures: Spiral side face to be Micrograin™ texture and Non-Spiral Side face to be Stucco texture. **[SELECT FROM THE FOLLOWING INSULATED PANEL FINISHES, DELETE THOSE NOT REQUIRED]**
         1. **(Standard Finish)** Finish: Factory powder coat painted, Color: RAL 9006, White Aluminum, [Spiral-Side Face Only] [Non-Spiral Side Face Only] [Both Faces].
         2. **(Optional Finish)** Finish: Polyester Powder Coat Painted, baked-on steel. Color selected from manufacturer’s standard color range, RAL Classic Color System, [Spiral Side Face Only] [Non-Spiral Side Face Only] [Both Faces].

**[SELECT FROM THE FOLLOWING DOOR CURTAIN PANEL TYPES, DELETE THOSE NOT REQUIRED]**

* + 1. **(Optional Equipment)** Vision Panel(s): Refer to Drawings for design intent per door type. Interlocking flat-faced, hollow extruded aluminum frames with neoprene rubber thermal break at panel joints (tops) and vision areas fitted with double-pane acrylic sheet material at 1” (25 mm) air space. **[SELECT FROM THE FOLLOWING VISION PANEL FINISHES, DELETE THOSE NOT REQUIRED]**
       1. **(Standard Frame Finish)** Frame Finish: Clear anodized, [Spiral-Side Face Only] [Non-Spiral Side Face Only] [Both Faces].
       2. **(Optional Frame Color Finish)** Frame Color Finish: Polyester Powder Coat Painted, baked-on aluminum. Color selected from manufacturer’s standard color range, RAL Classic Color System, [Spiral-Side Face Only] [Non-Spiral Side Face Only] [Both Faces].
       3. **(Standard Vision Material Color)** Vision Material Color: Transparent Clear; with Duratec® wear resistant coating.
       4. **(Optional Vision Material Color)** Vision Material Color: [Semi-transparent, Smoke Grey Tinted] [Semi-transparent, Bronze Tinted] [Translucent, Opal White Fritted]; with Duratec® wear resistant coating.
    2. **(Optional Equipment)** Ventilation Panel(s): Refer to Drawings for design intent per door type. Interlocking flat-faced, hollow extruded aluminum frames with neoprene rubber thermal break at panel joints (tops) and ventilation areas fitted with double-walled perforated aluminum sheet material at 1” (25 mm) air space. Material perforation pattern to allow for minimum 56.3% open area per sheet. **[SELECT FROM THE FOLLOWING VENTILATION PANEL FINISHES, DELETE THOSE NOT REQUIRED]**
       1. **(Standard Finish)** Finish: Clear anodized, [Spiral-Side Face Only] [Non-Spiral Side Face Only] [Both Faces].
       2. **(Optional Color Finish)** Color Finish: Polyester Powder Coat Painted, baked-on aluminum. Color selected from manufacturer’s standard color range, RAL Classic Color System, [Spiral-Side Face Only] [Non-Spiral Side Face Only] [Both Faces].
    3. Bottom Profile Panel: Interlocking flat-faced insulated steel panel, including neoprene rubber thermal break at panel top, and black EPDM rubber threshold door curtain seal at panel bottom. Factory Material Textures: Spiral side face to be Micrograin™ texture and Non-Spiral Side face to be Stucco texture. Automatic reversing edge mechanisms in bottom profile will not be accepted as a primary entrapment protection device. Bottom Profile Panel color finishes to coordinate with Primary Curtain Panel color finishes. Consult manufacturer for applications with custom Bottom Profile Panel lower-edge angles conforming to sloped threshold conditions. Additional entrapment protection safety features are required for Sloped Bottom Profiles (Photoelectric Sensor).
  1. Other Door Curtain Component(s):
     1. Intermediate Panel Connectors:(at each panel joint) For gap control spacing and sag between panels, to be spaced according to manufacturer’s set intervals at interior face of door. Standard Color: Light Grey.

1. FABRICATION
   1. Factory Production: Do not release doors for fabrication until all specified submittal materials have been reviewed, processed, and returned by the Architect as acceptable.
   2. Safety Labeling: Affix ‘High Performance Door Warning Label’ to one guide track vertically at a readable height, (5-feet) (1.5 m) above the bottom of track. Use only Door and Access Systems Manufacturers’ Association, (DASMA) created warning labels.
2. FINISHES
   1. Appearance of Finished Work: All components as provided, of overhead rapid coiling doors shall be factory finished. Noticeable variations of finish quality in the same piece are not acceptable.
   2. Finishing System: Optional Color Finishes: Top Assembly, Guide Tracks, Curtain Panels, and Hood Enclosures: baked-on polyester powder coat paint. Color as selected from manufacturer’s standard color range, RAL Classic color system.
3. ACCESSORIES
   1. General: Refer to Drawings including Door Schedules for basis of design for accessories, intended configurations, quantities, types, options, and remarks.

**[EDIT TO INCLUDE AS REQUIRED]**

* 1. **(Optional Equipment)** Hood (Motor and Top Assembly Enclosure): Form to entirely enclose coiled curtain panels and operating mechanism at door opening head and acting as entrapment protection and/or dust guard/ weather stop (exterior). Fabricate Hoods of hot-dipped galvanized G90 (0.9 oz./ft2) steel sheet. Coordinate finishes, including non-standard paint color selections for the Hood with other door component finishes, as approved by the Architect prior to fabrication.
     1. Hood Material Finish: **[SELECT FROM THE FOLLOWING HOOD FINISHES, DELETE THOSE NOT REQUIRED]**
        1. **(Standard Finish)** Finish: Galvanized steel, zinc, class G90 (Hood).
        2. **(Optional Finish)** Finish: Polyester Powder Coat Painted, baked-on steel. Color selected from manufacturer’s standard color range, RAL Classic Color System, (Hood).

**[EDIT TO INCLUDE AS REQUIRED]**

* 1. **(Optional Equipment)** Manufacturer Recommended:LED Lite-Advance System: Hörmann: Door operation indicating LED light strip safety system. Quantity: One (1) set. Provide flat retainer profiles for installation.

# PART 3 – EXECUTION

1. EXAMINATION
   1. Verification of Conditions: The doorway opening should be square and plumb, free of intrusion from obstructions, door threshold should be level, and host wall of sound construction and structural integrity to achieve the best possible installation.
2. PREPARATION
   1. Coordinate installation of overhead rapid coiling doors with other trades prior to commencement of work. Exterior doorway openings should be weatherproofed, flashed, and ready to receive finishes prior to commencing installation. Repair or replace damaged substrate materials and hold installation procedures until repairs are complete.
3. INSTALLATION
   1. General: Comply with manufacturer’s detailed written instructions for the installation of overhead rapid coiling doors.
      1. Installation may require the use of powered platforms, man-lifts, and vehicle-mounted work platforms.
      2. High voltage electrical field wiring to be performed by registered electricians experienced, trained, and qualified to perform the work.
      3. Verify the quality of the mounting structure for suitability to perform as required. Inspect for signs of damage, premature wear.
      4. Handle all materials with care. Do not attempt to rectify or reuse damaged parts without express approval from the manufacturer.
   2. Exterior Mounted Hoods: Continue weather barrier system behind Hood. DO NOT expose sheathing, framing members, or building insulation behind Hood without weather barrier protection.
   3. Tolerances: the door must be installed in an opening that is the products manufactured finished size.
4. SYSTEMS STARTUP, Adjusting, Cleaning
   1. Initial Operation: Before initial operation of the door and putting into service, check that it is in good working order and free of defects.
      1. Test Run: After installing the door, test the functional safety. Operate the door no fewer than 30 cycles during the testing phase. Verify proper working order of all safety components, including Emergency-Off button.
   2. Starting and Adjusting: After successful completion of Test Run, examine lift system components for proper wear. adjust doors to operate easily, free from warp, twist, or distortion and fitting weather-tight for entire perimeter of opening.
   3. Cleaning and Care: During construction operations Installer shall provide progress cleaning that minimizes accumulation of dirt, dust, ice, snow, and standing water. Verify all protective films have been removed from the door prior to final cleaning.
      1. Use warm water together with a neutral, non-abrasive cleaning agent (household detergent, pH value 7, Isopropanol 99.9%).
      2. To clean the surface, use ONLY a soft cloth. Rinse off any dirt, dust, snow or ice particles with clean water. Never scrape ice, snow or foreign materials from the door. DO NOT rub over the panels when dry, otherwise risk of scratching the surface finish may occur.
5. CLOSEOUT ACTIVITIES
   1. Demonstration and Training: It shall be the responsibility of the Installer to demonstrate safe operating procedure of the overhead rapid coiling door to the Owner’s appointed staff or representative. Start-up Services: Engage a factory-authorized service representative to train and educate facilities maintenance personnel for ongoing management and maintenance of the door.
6. PROTECTION, Maintenance
   1. Protecting Installed Construction: Overhead rapid coiling doors not yet in use may be vulnerable to impact damage and abrasions. Protect completed work from accidental damage after installation, and prior to acceptance by the Owner. Doors not in use should be set out with safety cones, caution tape and signage noting the door as not operational.
   2. Maintenance Intervals: Consult Product Owner’s Manual for proper maintenance and testing requirements. Cleaning the door curtain is recommended as needed for removal of dirt accumulation.
7. ATTACHMENTS
   1. Hörmann High Performance Doors: Product Data Sheet, Speed-Guardian™ 5000 C U 42.

END OF SECTION 08 33 23.13

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