SECTION 083323 - OVERHEAD COILING DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Service doors.
   2. Insulated service doors.
   3. Counter doors.
   4. Fire-rated service doors.
   5. Fire-rated, insulated service doors.
   6. Fire-rated counter doors.

B. Related Section:
   1. Section 055000 "Metal Fabrications" for miscellaneous steel supports.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance, Exterior Doors: Exterior overhead coiling doors shall withstand the wind loads, the effects of gravity loads, and loads and stresses within limits and under conditions indicated according to SEI/ASCE 7.


B. Windborne-Debris-Impact-Resistance Performance: Provide glazed and impact-protective overhead coiling doors that pass missile-impact and cyclic-pressure tests when tested according to ASTM E 1886 and ASTM E 1996.

C. Seismic Performance: Overhead coiling doors shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.

1.3 ACTION SUBMITTALS

A. Product Data: For each type and size of overhead coiling door and accessory.

B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each exposed product and for each color and texture specified.
1.4 INFORMATIONAL SUBMITTALS

A. Oversize Construction Certification: For door assemblies required to be fire-rated and that exceed size limitations of labeled assemblies.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data.

1.6 QUALITY CONTROL

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.

B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

PART 2 - PRODUCTS

2.1 DOOR CURTAIN MATERIALS AND CONSTRUCTION

A. Door Curtains: Fabricate overhead coiling-door curtain of interlocking metal slats, designed to withstand wind loading indicated, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:

B. Bottom Bar for Service Doors: Consisting of two angles, each not less than 1-1/2 by 1-1/2 by 1/8 inch thick; fabricated from metal to match curtain slats and finish.

C. Bottom Bar for Counter Doors: Manufacturer's standard continuous channel or tubular shape, fabricated from metal to match curtain slats and finish.

D. Astragal for Interior Doors: Equip each door bottom bar with a replaceable, adjustable, continuous, compressible gasket of flexible vinyl, rubber, or neoprene as a cushion bumper.

E. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

1. Removable Posts and Jamb Guides for Counter Doors: Manufacturer's standard.
2.2 HOOD
   A. General: Form sheet metal hood to entirely enclose coiled curtain and operating
      mechanism at opening head. Contour to fit end brackets to which hood is attached.
      Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-
      mounted hoods and fascia for any portion of between-jamb mounting that projects
      beyond wall face. Equip hood with intermediate support brackets as required to
      prevent sagging.

      1. Include automatic drop baffle on fire-rated doors to guard against passage of
         smoke or flame.
      2. Exterior-Mounted Doors: Fabricate hood to act as weather protection and with a
         perimeter sealant-joint-bead profile for applying joint sealant.

2.3 LOCKING DEVICES
   A. Slide Bolt: Fabricate with side-locking bolts to engage through slots in tracks for
      locking by padlock, located on both left and right jamb sides, operable from coil side.
   B. Locking Device Assembly: Fabricate with 5 pin tumbler single unit mechanism.
   C. Chain Lock Keeper: Suitable for padlock.
   D. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to
      disengage power supply when door is locked.

2.4 CURTAIN ACCESSORIES
   A. Smoke Seals: Equip each fire-rated door with smoke-seal perimeter gaskets for
      smoke and draft control as required for door listing and labeling by a qualified testing
      agency.
   B. Weatherseals: Equip each exterior door with weather-stripping gaskets fitted to entire
      perimeter of door for a weathertight installation, unless otherwise indicated.
   C. Push/Pull Handles: Equip each push-up-operated or emergency-operated door with
      lifting handles on each side of door, finished to match door. Provide pull-down straps or
      pole hooks for doors more than 84 inches high.
   D. Automatic-Closing Device for Fire-Rated Doors: Equip each fire-rated door with an
      automatic-closing device that is inoperative during normal door operations and that has
      a governor unit complying with NFPA 80 and an easily tested and reset release
      mechanism designed to be activated by the following:

      1. Replaceable fusible links with temperature rise and melting point of 165 deg F
         interconnected and mounted on both sides of door opening.
      2. Manufacturer's standard UL-labeled smoke detector and door-holder-release
         devices.
3. Manufacturer's standard UL-labeled heat detector and door-holder-release devices.
4. Building fire-detection and alarm systems and manufacturer's standard door-holder-release devices.

2.5 COUNTERBALANCING MECHANISM

A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.

B. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

2.6 MANUAL DOOR OPERATORS

A. Equip door with manufacturer's recommended manual door operator unless another type of door operator is indicated.

B. Chain-Hoist Operator: Consisting of endless steel hand chain, chain-pocket wheel and guard, and gear-reduction unit with a maximum 25 lbf force for door operation. Provide alloy-steel hand chain with chain holder secured to operator guide.

2.7 ELECTRIC DOOR OPERATORS

A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations, control devices, integral gearing for locking door, and accessories required for proper operation.

1. Comply with NFPA 70.
2. Provide control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24 V, ac or dc.

B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.

C. Electric Motors: Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Section 110513 "Common Motor Requirements for Equipment" unless otherwise indicated.

1. Electrical Characteristics:
   a. Phase: Single phase Polyphase.
   b. Volts: 208 [480] V.
   c. Hertz: 60.
2. Motor Type and Controller: Reversible motor and controller (disconnect switch) for motor exposure indicated.
3. Motor Size: Minimum size as indicated. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec., without exceeding nameplate ratings or service factor.
4. Operating Controls, Controllers (Disconnect Switches), Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.

D. Obstruction Detection Device: Equip motorized door with indicated external automatic safety sensor capable of protecting full width of door opening
1. Photoelectric Sensor: Manufacturer's standard system designed to detect an obstruction in door opening without contact between door and obstruction.
2. Sensor Edge: Automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.

E. Remote-Control Station: Momentary-contact, three-button control station with push-button controls labeled "Open," "Close," and "Stop."
1. Interior units, full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.
2. Exterior units, full-guarded, standard-duty, surface-mounted, weatherproof type, NEMA ICS 6, Type 4 enclosure, key operated.


G. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.

H. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

I. Audible and Visual Signals: Audible alarm and visual indicator lights in compliance with regulatory requirements for accessibility.

2.8 DOOR ASSEMBLY

A. [Service] [Insulated Service] [Counter] Door: Overhead coiling door formed with curtain of interlocking metal slats.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
a. Cookson Company.
b. Kinnear Corporation.
c. Overhead Door Corporation.
d. Pacific Rolling Door Company
e. Raynor.
f. Windsor Door.
g. <Insert manufacturer's name>.

B. Fire Rating: [3/4 hour] [1 hour] [1-1/2 hours] [3 hours] [4 hours] [with temperature-rise limit] [and] [with smoke control].

C. Curtain R-Value: 4.5 deg F x h x sq. ft./Btu.

D. Door Curtain Material: Aluminum.

E. Door Curtain Slats: Flat profile slats of [1-1/4-inch] [1-1/2-inch] [1-7/8-inch] [2-5/8-inch] [3-1/4-inch] center-to-center height.

3. Vision Panels: Approximately 10- by 1-5/8-inch openings spaced approximately 2 inches apart and beginning 12 inches from end guides; in [two] [three] <Insert number> rows of slats at height indicated on Drawings; installed with [insulated] [fire-rated] vision-panel glazing.
4. Insulated-Slat Interior Facing: [Metal] [Plastic].

F. Curtain Jamb Guides: [Galvanized steel] [Stainless steel] [Aluminum] with exposed finish matching curtain slats. [Provide continuous integral wear strips to prevent metal-to-metal contact and to minimize operational noise.] Provide removable post(s) and jamb guides where shown on Drawings.

G. Hood: Match curtain material and finish.

1. Shape: As shown on Drawings.
2. Mounting: [Face of wall] [Between jambs] [As shown on Drawings].

H. Integral Frame, Hood, and Fascia for Counter Door: [Galvanized steel].

1. Mounting: [Face of wall] [Between jambs] [As shown on Drawings].

I. Sill Configuration for Counter Door: [No sill] [Integral metal sill] [Fire-rated, laminate counter].

J. Locking Devices: Equip door with [slide bolt for padlock] [locking device assembly] [and] [chain lock keeper].

1. Locking Device Assembly: [Single-jamb side] [Cremone type, both jamb sides] locking bars, operable from [inside with thumb turn] [outside with
cylinder] [outside only, with cylinder] [inside and outside with cylinders]
<Insert requirement>.

K. Manual Door Operator: [Push-up operation] [Chain-hoist operator] [Manufacturer's
standard crank operator] [Awning-crank operator] [Wall-crank operator].

L. Electric Door Operator:

1. Usage Classification: Standard duty, up to 60 cycles per hour
4. Obstruction-Detection Device: Automatic photoelectric sensor or electric sensor
edge on bottom bar.
5. Remote-Control Station: Where shown on Drawings.

M. Door Finish:

1. Aluminum Finish: Mill Clear, or Anodized color as selected by Architect.
2. Baked-Enamel or Powder-Coated Finish: Color as selected by Architect from
manufacturer's full range.
4. Stainless-Steel Finish: No. 2B (bright), cold rolled.
5. Interior Curtain-Slat Facing: Match exterior finish or <Insert finish>.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install overhead coiling doors and operating equipment complete with necessary
hardware, anchors, inserts, hangers, and equipment supports; according to
manufacturer's written instructions and as specified.

B. Fire-Rated Doors: Install according to NFPA 80.

C. Smoke-Control Doors: Install according to NFPA 80 and NFPA 105.

D. Adjust hardware and moving parts to function smoothly so that doors operate easily,
free of warp, twist, or distortion. Lubricate bearings and sliding parts as recommended
by manufacturer. [Adjust seals to provide weathertight fit around entire perimeter.]

3.2 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance
personnel to adjust, operate, and maintain overhead coiling doors.

END OF SECTION