

SECTION 083323 OVERHEAD COILING DOORS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the overhead coiling doors as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Overhead coiling doors, fire-rated and unrated.
 - 2. Hardware and accessories.
 - 3. Motor operation.

1.3 RELATED SECTIONS

- A. Door Hardware - Section 087100.
- B. Electrical - Division 26.

1.4 QUALITY ASSURANCE

- A. Furnish each overhead coiling door as a complete unit produced by one manufacturer, including hardware, accessories, mounting and installation components.
- B. Provide each type of overhead coiling door by one manufacturer for entire project.
- C. Wind Loading: Design and reinforce exterior overhead coiling doors to withstand a thirty (30) lb. per square foot wind loading pressure, unless otherwise indicated.
- D. Rated Overhead Coiling Door Assemblies
 - 1. Furnish roll up door assemblies where scheduled on drawings which comply with NFPA No. 80 and have been fire tested, rated and labeled in accordance with ANSI/ASTM E 152. Furnish each shutter with a metal UL label as evidence of rating, with label indicating rating in hours of duration of exposure to fire and letter designation of location for which assembly is designed.
 - 2. Provide automatic closing device and governor, operating when activated by temperature rise and melting of one hundred sixty (160) degrees F. (71 deg. C.) fusible link and smoke detector. Construct governor unit to be inoperative during normal shutter operations. Design release mechanism for easy resetting.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, roughing-in diagrams, and installation instructions for each type and size of overhead coiling door. Include operating instructions and maintenance information.

- B. Shop Drawings: Submit shop drawings for special components and installations which are not fully dimensioned or detailed on manufacturer's data sheets.
- C. Label Certification: Submit UL certification for fire-rated doors and frames.

1.6 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Provide overhead coiling doors manufactured by Cornell Cookson, McKeon, Overhead Door Corp., Atlas Overhead Doors, or approved equal meeting these specifications.

2.2 DOOR CURTAIN MATERIALS AND CONSTRUCTION

- A. Shutter Curtain: Fabricate overhead coiling door curtains of interlocking flat slats designed to withstand required wind loading, of continuous length for width of doors, without splices. Provide slats of structural quality, minimum twenty (20) gauge cold-rolled galvanized steel sheets complying with ASTM A 924, Grade A, with G90 zinc coating, complying with ASTM A 653, and phosphate treated before fabrication.
 - 1. Curtain shall be insulated with 1" urethane and 22 ga. back-up sheet.
- B. Endlocks: Malleable iron castings galvanized after fabrication, secured to curtain slats with galvanized rivets. Provide locks on alternate curtain slats for curtain alignment and resistance against lateral movement.
- C. Windlocks: Malleable iron castings secured to curtain slats with galvanized rivets. Provide windlocks on overhead coiling doors approximately twenty-four (24) inches o.c. on both edges of curtain.
- D. Bottom Bar: Consisting of two (2) angles, each not less than 1-1/2" x 1-1/2" x 1/8" thick, either galvanized or stainless steel or aluminum extrusions to suit type of curtain slats.
- E. Curtain Jamb Guides: Fabricate curtain jamb guides of steel angles, or channels and angles with sufficient depth and strength to retain curtain loading. Build up units with minimum 3/16" thick steel sections, galvanized after fabrication. Slot bolt holes for track adjustment.
 - 1. Secure continuous wall angle to wall framing by 3/8" minimum bolts at not more than twenty-four (24) inches o.c. Extend wall angles above roll up door opening head to support coil brackets, unless otherwise shown. Place anchor bolts on exterior wall guides so they are concealed when roll up door is in closed position. Provide removable stops on guides to prevent over-travel of curtain, and continuous bar for holding windlocks.

- F. Weather Seals: Provide vinyl or neoprene weatherstripping for exterior doors. At door heads, use 1/8" thick continuous sheet secured to inside of curtain coil hood. At door jambs, use 1/8" thick continuous strip secured to exterior side of jamb guide.

2.3 COUNTERBALANCING MECHANISM

- A. Counterbalance doors by means of adjustable steel helical torsion spring, mounted around a steel shaft and mounted in a spring barrel and connected to door curtain with required barrel rings. Use grease sealed bearings or self-lubricating graphite bearings for rotating members.
- B. Counterbalance Barrel: Fabricate spring barrel of hot-formed structural quality carbon steel, welded or seamless pipe, of sufficient diameter and wall thickness to support curtain without distortion of slats and limit barrel deflection to not more than 0.03" per foot of span under full load.
- C. Provide spring balance of one or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Provide cast steel barrel plugs to secure ends of springs to barrel and shaft.
- D. Fabricate torsion rod for counterbalance shaft of cast-hardened steel, of required size to hold fixed springs ends and carry torsion load.
- E. Brackets: Provide mounting brackets of manufacturer's standards design, either cast iron or cold-rolled steel plate with bell mouth guide groove for curtain.
- F. Hood: Form to entirely enclose coiled curtain and operating mechanism at opening head, and act as weather seal. 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 any portion of between-jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag.
 - 1. Fabricate hoods of aluminum sheet of alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated; 0.040" minimum thickness, complying with ASTM B 209.
 - 2. At fire-rated assemblies furnish automatic drop baffle to guard against passage of smoke or flame.

2.4 INSERTS AND ANCHORAGES

- A. Furnish inserts and anchoring devices which must be set in concrete or built into masonry for installation of units. Provide setting drawings, templates, instructions and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.
- B. Refer to concrete and masonry Sections of these specifications for installation of inserts and anchorage devices.

2.5 PAINTING

- A. Shop clean and prime ferrous metal and galvanized surfaces, exposed and unexposed, except faying and lubricated surfaces, with door manufacturer's standard rust inhibitive primer.

2.6 ELECTRIC DOOR OPERATORS

- A. Furnish electric door operator assembly of size and capacity recommended and provided by door manufacturer; complete with electric motor and factory pre-wired motor controls, gear reduction unit, solenoid operated brake, remote control stations, control devices, conduit and wiring from controls to motor and control stations, and accessories required for proper operation.
- B. Provide hand operated disconnect or a mechanism for automatically engaging a sprocket and chain operator and releasing brake for emergency manual operation. 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.
- C. Design operator so that motor may be removed without disturbing limit switch adjustment and without affecting emergency auxiliary operator.
- D. Door Operator Type: Provide wall or bracket mounted door operator units consisting of electric motor, worm gear drive from motor to reduction gear box, chain or worm gear drive from reduction box to gear wheel mounted on counterbalance shaft, and a disconnect-release for manual operation. Provide motor and drive assembly of horsepower and design as determined by door manufacturer for size of door required.
- E. Electric Motors: Provide high starting torque, reversible, constant duty, Class A insulated electric motors with overload protection, sized to move overhead coiling door in either direction, from any position, at not less than 2/3 foot nor more than one (1) foot per second.
 - 1. Coordinate wiring requirements and current characteristics of motors with building electrical system.
 - 2. Furnish totally enclosed, non-ventilated type motors, fitted with plugged drain, and controller with NEMA Type 4 enclosure.
- F. Remote Control Station: Provide momentary contact, 3-button control station with push button controls labeled "open," "close," and "stop."
 - 1. Provide interior units, full-guarded, surface mounted, heavy duty, with NEMA Type 4 enclosure.
- G. Automatic Reversing Control: Furnish each door with automatic safety switch, extending full width of door bottom, and located within neoprene or rubber astragal mounted to bottom door rail. Contact with switch before fully closing will immediately stop downward travel and reverse direction to fully opened position. Connect to control circuit through retracting safety cord and reel, or self-coiling cable.
 - 1. Provide electrically actuated automatic bottom bar.
- H. Locking Device: Curtain shall have cylinder locking device, including cylinder and 2 deadbolts, one at each end. Provide electric interlocks that prevent motor from operating when lock is engaged.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where overhead coiling doors are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Install overhead coiling door and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports in accordance with final shop drawings, manufacturer's instructions, and as specified herein.
 - 1. Install fire-rated doors to comply with NFPA 80.
- B. Upon completion of installation, including work by other trades, lubricate, test and adjust overhead coiling doors to operate easily, free from warp, twist or distortion and fitting weather-tight for entire perimeter.

END OF SECTION 083323