

SECTION 08334

OVERHEAD COILING GRILLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes electric-motor-operated, overhead coiling grilles.
- B. Related Sections include the following:
 - 1. Division 5 Section "Metal Fabrications" for miscellaneous steel supports and door frame.
 - 2. Division 16 Sections for electrical service and connections for powered operators, and accessories.

1.03 DEFINITIONS

- A. Operation Cycle: One cycle of a door is complete when it is moved from the closed position to the fully open position and returned to the closed position.

1.04 PERFORMANCE REQUIREMENTS

- A. Operation-Cycle Requirements: Provide overhead coiling grille components and operators capable of operating as follows:
 - 1. Level One Grille: Not less than 20,000 cycles and for less than 10 cycles per day.
 - 2. Level Two Grille: Not less than 20,000 cycles and for 30 cycles per day.

1.05 SUBMITTALS

- A. General: Submit in accordance with Section 01300.
- B. Product Data: For each type and size of overhead coiling grille and accessory. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes. Include the following:
 - 1. Summary of forces and loads on walls and jambs.
 - 2. Setting drawings, templates, and installation instructions for built-in or embedded anchor devices.
 - 3. Rough-in diagrams.
- C. Shop Drawings: For special components and installations not dimensioned or detailed in manufacturer's product data.
- D. Qualification Data: For Installer.
- E. Maintenance Data: Submit operating instructions and maintenance information for inclusion in maintenance manuals.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain overhead coiling grilles through one source from a single manufacturer.

- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cookson Company.
 - 2. Overhead Door Corp.

2.02 GRILLE CURTAIN MATERIALS AND CONSTRUCTION

- A. General: Fabricate overhead coiling grille curtain consisting of a network of 5/16-inch- minimum diameter horizontal rods, or rods covered with tube spacers, spaced as indicated. Interconnect rods by vertical links approximately 5/8 inch wide, spaced as indicated and rotating on rods.
 - 1. Space rods at approximately 2 inches o.c.
 - 2. Space links approximately 9 inches apart in a straight in-line pattern.
 - 3. Aluminum Grille Curtain: ASTM B 221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- B. Endlocks: Continuous end links, chains, or other devices at ends of rods; locking and retaining grille curtain in guides against excessive pressures, maintaining grille curtain alignment, and preventing lateral movement.
- C. Bottom Bar: Manufacturer's standard continuous channel, tubular shape, or two angles, finished to match grille.
 - 1. Provide motor-operated grille with combination bottom astragal and sensor edge.
- D. Grille Curtain Jamb Guides: Manufacturer's standard shape having curtain groove with return lips or bars to retain curtain. Provide continuous integral wear strips to prevent metal-to-metal contact and to minimize operational noise; with removable stops on guides to prevent overtravel of curtain.

2.03 HOODS AND ACCESSORIES

- A. Hood: Form 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. Provide closed ends for surface-mounted hoods, and provide fascia for any portion of between-jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sagging.
 - 1. Fabricate hoods of minimum 0.028-inch- thick, hot-dip galvanized steel sheet with G90 zinc coating, complying with ASTM A 653.
 - 2. Shape: Square.

2.04 COUNTERBALANCING MECHANISM

- A. General: Counterbalance grille curtain by means of adjustable-tension, steel helical torsion spring mounted around a solid steel shaft and contained in a spring barrel connected to grille curtain with 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, welded or seamless carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up grille curtain without distortion of curtain and to limit barrel deflection to not more than 0.03 in./ft. 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 grille curtain, with uniform adjustment accessible from outside barrel. Provide cast-steel barrel plugs to secure ends of springs to barrel and shaft.
 - 1. Cycles: 20,000 minimum.

- D. Fabricate torsion rod for counterbalance shaft of cold-rolled steel, sized to hold fixed spring ends and carry torsional load.
- E. Brackets: Provide mounting brackets of manufacturer's standard design, either cast iron or cold-rolled steel plate.

2.05 ELECTRIC GRILLE OPERATORS

- A. General: Provide electric grille operator assembly of size and capacity recommended and provided by grille manufacturer for grille and operation-cycle requirements 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 grille, and accessories required for proper operation.
- B. Comply with NFPA 70.
- C. Disconnect Device: Provide hand-operated disconnect or mechanism for emergency manual operation while disconnecting motor, without affecting timing of limit switch. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
- D. Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator.
- E. 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.
- F. Grille-Operator Type: Provide gear-head-type grille operator unit consisting of electric motor, enclosed worm-gear running-in-oil primary drive, and chain and sprocket secondary drive or direct drive as required by limited overhead room; with quick disconnect-release for manual operation.
- G. Electric Motors: Provide high-starting torque, reversible, continuous-duty, Class A insulated, electric motors complying with NEMA MG 1; with overload protection; sized to start, accelerate, and operate grille in either direction from any position, at not less than 2/3 fps and not more than 1 fps, without exceeding nameplate ratings or service factor.
 - 1. Type: Polyphase, medium-induction type.
 - 2. Service Factor: According to NEMA MG 1, unless otherwise indicated.
 - 3. Coordinate wiring requirements and electric characteristics of motors with building electrical system.
 - 4. Provide open dripproof-type motor, and controller with NEMA ICS 6, Type 1 enclosure.
- H. Control Stations: Shall be as follows:
 - 1. Level One Parking: Provide momentary contact "Open" and "Close" keyed switch with spring return to center and a stop button.
 - 2. Level Two Parking: Provide radio control system consisting of multifunction remote control and a momentary contact "Open" and "Close" keyed switch with spring return to center and a stop button.
- I. Obstruction Detection Device: Provide each motorized grille with indicated external automatic safety sensor capable of protecting full width of grille opening. Activation of sensor immediately stops and reverses downward grille travel.
 - 1. Sensor Edge: Provide each motorized grille with an automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor immediately stops and reverses downward grille travel. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.
- J. Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop grille at fully opened and fully closed positions.
- K. Vehicle Presence Detector for Level Two Parking: Provide emitter/receiver-type detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of vehicle in grille

pathway by interrupting infrared beam in zone pattern and to emit signal activating operator. Include automatic closing timer with adjustable time delay before closing, timer cut-off switch, and vehicle presence detector designed to open and close grille or hold grille open until traffic clears as required by the end user.

2.06 FINISHES, GENERAL

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. 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. 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 and are assembled or installed to minimize contrast.

2.07 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Manufacturer's standard mill finish.
- C. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install grilles and operating equipment, complete with necessary hardware, according to Shop Drawings, manufacturer's written instructions, and as specified.

3.02 ADJUSTING

- A. After completing installation, including work by other trades, lubricate bearings and sliding parts; adjust grilles to operate easily, free of warp, twist, or distortion and with tight fit around entire perimeter.

3.03 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead coiling grilles. Refer to Division 1 Section "Contract Closeout."
 - 1. Review data in the Maintenance Manuals.
- B. Schedule training with Owner with at least 7 days advance notice.

END OF SECTION