



## SECTION 08333

### SECURITY GRILLES

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#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Upcoiling Security Grilles, manually operated.
- B. Upcoiling Security Grilles, power operated.
- C. Advanced Upcoiling Security Grilles, power operated.

##### 1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Support framing and framed opening.
- B. Section 06200 - Finish Carpentry: Wood jamb and head trim.
- C. Section 08710 - Door Hardware: Product Requirements for cylinder core and keys.
- D. Section 09900 - Painting: Field applied finish.
- E. Section 16130 - Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station.
- F. Section 16150 - Wiring Connections: Power to disconnect.

##### 1.3 REFERENCES

- A. ASTM A 123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- B. ASTM A 229 - Standard Specification for Steel Wire, Quenched and Tempered for Mechanical Springs.
- C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

- D. ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- E. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- F. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- G. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).
- H. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- I. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
- J. NEMA MG 1 - Motors and Generators.

#### 1.4 SYSTEM DESCRIPTION

- A. Security Grille: Wayne–Dalton 600 Series Upcoiling Security Grilles.
  - 1. Mounting: Door mounting can be self-supporting, using structural tubes, or directly to the building structure.
  - 2. Operation:
    - a. Manual push-up with lift handles.
    - b. Chain and gear maximum pull of 35 lbs.
    - c. Fully enclosed awning type crank gearing and removable crank arm,
    - d. Motor operated with control station.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings: Include detailed plans, elevations, details of framing members, required clearances, anchors, and accessories. Include relationship with adjacent materials.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- G. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic checking, adjustment and maintenance of all components.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years' experience in the fabrication and installation of security closures.
- B. Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry
- C. Store materials in a dry, warm, ventilated weathertight location

## 1.8 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

## 1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

## 1.10 COORDINATION

- A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed material

## 1.11 WARRANTY

- A. Provide Advanced Upcoiling Security Grilles with limited 2 Year or 300,000 cycle Warranty and an Electric Motor limited Warranty of 60 month.

# PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Wayne Dalton; 2501 S. State Highway 121 Business, Suite 200, Lewisville, TX 75067. ASD. Phone: (800) 827-3667; Web Site: [www.wayne-dalton.com](http://www.wayne-dalton.com). Email: info@wayne-dalton.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

## 2.2 UPKOILING SECURITY GRILLE

- A. Wayne Dalton Model 600 Upcoiling Security Grille.
  - 1. Curtains:
    - a. Material: Curtains fabricated of 5/16 inch diameter horizontal rods continuous from jamb to jamb.
      - 1) Hollow galvanized steel.
      - 2) Solid galvanized steel.
      - 3) Solid stainless steel.
      - 4) Solid aluminum.
    - b. Material: Vertical links and tubes shall be:
      - 1) Stainless steel.
      - 2) Mill aluminum.
      - 3) Galvanized steel.
    - c. Patterns:
      - 1) G-6 straight pattern (standard); 9 inch spacing.
      - 2) G-6 straight pattern (standard); 9 inch spacing with acrylic lites and aluminum curtain.
      - 3) G-6 modified straight pattern; 6 inch spacing,
      - 4) G-8 straight pattern; 4 inch spacing,
      - 5) G-3 straight pattern; 3 inch spacing,
      - 6) G-7 straight pattern; 2 inch spacing.
      - 7) G-1 brick pattern; 4.5 inch spacing,
      - 8) G-1 modified brick pattern; 3.125 inch spacing.
      - 9) Centerlock security pattern
    - d. End links ensure that grille cannot be pulled from guides.
    - e. Bottom bar is fitted with nylon end caps and fabricated of:
      - 1) Tubular extruded aluminum.
      - 2) Double angle extruded aluminum.
      - 3) Double angle steel.
      - 4) Double angle stainless steel.
      - 5) Sloping bottom bar.
      - 6) Curb cutout bottom bar.
    - f. Vinyl Astragal: Provided bottom bar with vinyl astragal.
  - 2. Guides fabricated of extruded aluminum with polypropylene wool pile inserts to contact both faces of grille.
    - a. Mill aluminum finish.
    - b. Clear anodized aluminum.
    - c. Bronze anodized aluminum.
    - d. Powder coating as selected from the manufacturer's standard colors.
  - 3. Bracket Plates are 3/16 inch minimum steel plate. Provide with sealed ball bearings to support the counterbalance assembly. Brackets to form end closures and support hoods.
    - a. Steel with black painted finish.

- b. Galvanized steel.
  - c. Stainless steel.
  - d. Powder coating as selected from the manufacturer's standard colors.
- 4. Tension shaft and pipe of sufficient size to carry door load with deflection not to exceed .033 inch per foot of door span and to be correctly balanced by helical springs, oil tempered torsion type. Cast iron barrel plugs will be used to anchor springs to tension shaft and pipe.
- 5. Hood: Hood will enclose curtain coil and counterbalance mechanism and is fabricated of sheet metal, flanged at top for attachment to header and flanged at bottom to provide longitudinal stiffness. Provide intermediate hood supports over 16 feet opening width.
  - a. Galvanized steel 24 gauge.
  - b. Mill aluminum (.032 mm).
  - c. Aluminum.
  - d. Stainless steel.
- 6. Finish: Curtain, bottom bar, and hood to be finished as follows:
  - a. Galvanized Steel, primed.
  - b. Aluminum: Mill finish.
  - c. Aluminum: Clear anodized.
  - d. Aluminum: Bronze anodized.
  - e. Aluminum: Powder coating as selected from the manufacturer's standard colors.
  - f. Stainless steel #4 finish.
  - g. Steel: Powder coating as selected from the manufacturer's standard colors.
- 7. Manual Operation:
  - a. Push-up with lift handles.
  - b. Chain hoist.
  - c. Awning crank.
  - d. Wall crank.
- 8. Electric Motor Operation: Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot or more than 1 foot per second.
  - a. Sensing Edge Protection:
    - 1) Electric sensing edge.
    - 2) Pneumatic sensing edge.
  - b. Operator Controls:
    - 1) Push-button operated control stations with open, close, and stop buttons.
    - 2) Key operation with open, close, and stop controls.
    - 3) Push-button and key operated control stations with open, close, and stop buttons.
    - 4) Controls for interior location.
    - 5) Controls for exterior location.
    - 6) Controls for both interior and exterior location.
    - 7) Controls surface mounted.
    - 8) Controls flush mounted.
  - c. Emergency Egress: Provide code compliant emergency egress system that automatically unlocks and manually releases grille part way to permit passage, even if power is not available.
  - d. Emergency Egress: Provide code compliant emergency egress operator system with self-locking mechanism that automatically unlocks, automatically releases, and opens grille fully to permit passage if power is not available.
- 9. Locking:

- a. Manual or crank operated grilles to be locked by means of slide bolt locking device operable from inside or outside.
- b. Chain and gear operated doors are provided with a chain lock keeper.
- c. Motor operated grilles include self-locking gearing plus chain locking device for emergency chain. Locks on electric-motor operated doors, shall be provided with electric interlocks to prevent operation when lock bolts are engaged in the guides.
- d. Provide cylinder lock at jambs or in center of bottom bar.
- e. Provide thumb turn lock at jambs or in center of bottom bar.
- f. EZ-LOK with Emergency Egress option only.

## 2.3 ADVANCED UPCOILING SECURITY GRILLE

### A. Model 600 with Advanced Grille System Option:

1. Curtain: Horizontal 5/16 inch (7.8 mm) diameter rods with network of vertically interlocking links to form a pattern. Vertical rod 2 inch (51 mm) on center spacing. Bottom bar extruded aluminum tubular shape.
  - a. Material:
    - 1) Stainless Steel Link, Galvanized Steel Rod, and Stainless Steel Spacer: No. 4 finish.
    - 2) Stainless Steel Link, Galvanized Steel Rod, and Stainless Steel Spacer: No. 2B finish.
    - 3) Galvanized w/ Rust Inhibitor Steel Link, Rod, and Mill Aluminum Spacer.
    - 4) Mill Aluminum Link, Galvanized Steel Rod, and Mill Aluminum Spacer
    - 5) Clear Anodized Aluminum Link, Galvanized Steel Rod, and Clear Anodized Aluminum Spacer
  - b. Pattern:
    - 1) Straight; horizontal spacing 9 inches (228 mm) on center.
    - 2) Brick; horizontal spacing 4-1/2 inches (114 mm) on center.
2. Performance:
  - a. Opening speed of no less than 20 inches/second
  - b. Closing speed of no higher than 12 inches/second
  - c. Springless direct drive mechanism without chain and sprocket connecting the drive mechanism to the door.
  - d. System cycle of no less than 300,000 cycles.
3. Finish:
  - a. Prime all non-galvanized, exposed ferrous surfaces with one coat of rust-inhibitive primer
  - b. Powder coat: polyester powder coat, color as selected by the Architect.
4. Guides: Three angle structural steel high usage guide.
  - a. Finish: polyester powder coat in black color.
  - b. Finish: polyester powder coat, color as selected by Architect.
  - c. Finish: Powder coat enriched with zinc, color as selected by the Architect.
  - d. Finish: Stainless steel.
5. Bottom Bar:
  - a. Tubular extruded aluminum
    - 1) Finish: Mill finish aluminum
  - b. Double structure steel angle
    - 1) Finish: polyester powder coat in black.
    - 2) Finish: polyester powder coat, color as selected by the Architect.
    - 3) Finish: Powder coat enriched with zinc, color as selected by the Architect.
    - 4) Finish: Stainless steel.

6. Motor: Direct drive, hypoid gear motor/brake assembly sized for openings. Provide with a manual hand crank for operation during power outages. Operator and drive assembly is factory pre-assembled and provided with low voltage factory wiring with quick connect wiring harnesses where applicable.
  - a. Electrical Characteristics: 208/230V AC, three phase per motor/drive.
  - b. Electrical Characteristics: 460V AC, 3 phase per motor/drive.
  - c. Left hand mount.
  - d. Right hand mount.
7. Control Panel: Provide electronic Variable Frequency drive controller with microprocessor self-diagnostics. LCD readout indicates door action, alarm conditions, and fault conditions. Timer to close programming options and non-resettable cycle counter are included. Enclosure is NEMA 4X rated. Control system is UL508A certified. The junction box is IP67 rated.
8. Door Roll: Directly driven, springless roll shall be steel tube with integral shafts, keyed on the Drive End and supported by self-aligning greaseable sealed bearings. Door shall not require any counterbalance device.
9. Hood: Protecting drive motor, barrel, chain, stop lock brake and sprocket from dirt and debris and extending between the support brackets. Fabricated of:
  - a. 24 gauge black painted steel.
  - b. 24 gauge powder coated steel, color as selected by Architect.
  - c. Stainless Steel with brush finish.
  - d. Clear anodized aluminum.
  - e. Powder coated aluminum, color as selected by Architect.
  - f. Provide with sloped top for exterior mounting.
10. Brackets: Provide metal brackets to support motor, curtain, and hood and fabricated of:
  - a. Black powder coated steel.
  - b. Powder coated steel, color as selected by Architect.
  - c. Zinc enriched powder coat, color as selected by Architect.
11. Safety Devices: Provide door with following safety devices:
  - a. Photoelectric sensors that cast an invisible beam across the door opening and reverses the downward motion of the door when an object enters the path of the beam.
  - b. Self-monitoring 2-wire, electric fail-safe sensing edge reverses downward motion upon impact.
  - c. Drop stop device eliminates uncontrolled curtain travel independent of other safeties.
12. Actuators:
  - a. One Open/Close/Stop push button station incorporated into Control Panel.
  - b. Loop detectors.
  - c. Radio control.
  - d. Interior Push buttons.
  - e. Exterior Push buttons.
  - f. Interior Key switch.
  - g. Exterior Key switch.
  - h. Motion detectors.
  - i. Warning light.
  - j. Horns and/or strobes.
  - k. Second set of photoelectric sensors.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify opening sizes, tolerances and conditions are acceptable.
- B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
- D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- E. Coordinate installation of electrical service with Section 16150. Complete wiring from disconnect to unit components.
- F. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.
- G. Install perimeter trim and closures.
- H. Instruct Owner's personnel in proper operating procedures and maintenance schedule.

### 3.4 ADJUSTING

- A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion
- B. Adjust hardware and operating assemblies for smooth and noiseless operation.

### 3.5 CLEANING

- A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.
- B. Remove labels and visible markings.
- C. Touch-up, repair or replace damaged products before Substantial Completion.



### 3.6 PROTECTION

- A. Protect installed products until completion of project.

### 3.7 SCHEDULES

- A. :
  - 1.
  - 2.
  - 3.

- B. :
  - 1.
  - 2.
  - 3.

END OF SECTION