



## SECTION 08333

### SECURITY GRILLES

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#### **PART 1 GENERAL**

##### 1.1 SECTION INCLUDES

- A. Side Folding Security Grilles, manually operated.
- B. Upcoiling Security Grilles, manually operated.
- C. Upcoiling Security Grilles, power operated.
- D. Advanced Performance Overhead Coiling Grille.

##### 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 08332 - Overhead Coiling Counter Doors.
- D. Section 08710 - Door Hardware: Product Requirements for cylinder core and keys.
- E. Section 16130 - Raceway and Boxes: Conduit from electric circuit to grille operator and from grille operator to control station.
- F. Section 16150 - Wiring Connections: Power to disconnect.

##### 1.3 REFERENCES

- A. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- C. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

- D. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- E. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).
- F. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- G. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
- H. NEMA MG 1 - Motors and Generators.

#### 1.4 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, representing actual product, color, and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

#### 1.5 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. Install in areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship and installation is approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.

#### 1.6 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.

## 1.7 COORDINATION

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

## 1.8 WARRANTY

- A. RapidGrille AP Model 676: Motor 5 year limited warranty; other components 2 year or 300,000 cycle limited warranty.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: [www.overheaddoor.com](http://www.overheaddoor.com). E-mail: info@overheaddoor.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

### 2.2 SIDE FOLDING SECURITY GRILLES

- A. Side-Folding Metal Vision Panel Grilles: Overhead Door Corporation Model 675.
  - 1. Curtain: Aluminum 18 gauge (1.27 mm) with 3/16 inch (4.8 mm) perforated steel panels that allow 51 percent visibility.
    - a. Panel Width: Standard 7 inch (178 mm).
    - b. Panel Width: Wide-body 11-1/4 inch (286 mm).
    - c. Frame: Truss like aluminum frame, minimum 4 inch (102 mm) high bottom and 5-1/4 inch (133 mm) high top plates.
  - 2. Finish:
    - a. Aluminum clear anodized.
    - b. Aluminum color anodized. Color as selected by Architect.
    - c. Duracron acrylic or powder coat paint. Color as selected by Architect.
  - 3. Track:
    - a. Trolley assemblies shall be 1-1/8 inch (29 mm) and adjustable 1 inch (25 mm) upward or downward without the removal of the curtain.
    - b. Track shall be heavy extruded aluminum 1-3/8 inch (35 mm) wide by 1 5/8 inch (41 mm) high.
    - c. Curves:
      - 1) 90 degrees.
      - 2) 120 degrees.
      - 3) 135 degrees.
      - 4) 150 degrees.
      - 5) Radius: 14 inch (356 mm) for standard models.
      - 6) Radius: 22 inch (559 mm) radius for Wide-Body models.
  - 4. Locking:
    - a. Provide lead post with a concealed a hook bolt lock activated by a keyed cylinder or thumb turn that engages a full height wall channel. Where required, provide a top and bottom spring loaded locking post

with interior thumb turn and protection or keyed cylinder and dustproof floor sockets for all drop bolts. Provide rubber bumper at the edge of locking post.

- b. Intermediate posts:
  - 1) Floor mounted provide intermediate posts a maximum of 10 feet (3048 mm) of curtain length.
  - 2) For counter mounts and at each curve provide intermediate posts a maximum of 6 feet (1828 mm).
  - 3) Intermediate posts contain an adjustable concealed spring loaded drop bolt with cylinder locks keyed alike. Provide with dustproof floor sockets for all drop bolts.
- c. Traveling end post shall have an attached full height protection plate and shall be self locking into a steel V-stop. End post are fixable to a wall when stacked in the opening using top and bottom locking posts.

B. Side-Folding Polycarbonate Vision Panel Grilles: Overhead Door Corporation Model 677. Polycarbonate panels shall be cushioned with specially designed vinyl compression gaskets at top and bottom of glazing.

- 1. Curtain: Aluminum 18 gauge (1.27 mm) with 1/8 inch (3 mm) thick self-extinguishing polycarbonate viewable area.
  - a. Panel Width: Standard 7 inch (178 mm) with a 4-3/4 inch (121 mm) viewable area.
  - b. Panel Width: Wide-body 11-1/4 inch (286 mm) with a 8-7/8 inch (226 mm) viewable area.
  - c. Frame: Truss like aluminum frame, minimum 4 inch (102 mm) high bottom and 5-1/4 inch (133 mm) high top plates.
- 2. Finish:
  - a. Aluminum clear anodized.
  - b. Aluminum color anodized. Color as selected by Architect.
  - c. Duracron acrylic or powder coat paint. Color as selected by Architect.
- 3. Track:
  - a. Trolley assemblies shall be 1-1/8 inch (29 mm) and adjustable 1 inch (25 mm) upward or downward without the removal of the curtain.
  - b. Track shall be heavy extruded aluminum 1-3/8 inch (35 mm) wide by 1 5/8 inch (41 mm) high.
  - c. Curves:
    - 1) 90 degrees.
    - 2) 120 degrees.
    - 3) 135 degrees.
    - 4) 150 degrees.
    - 5) Radius: 14 inch (356 mm) for standard models.
    - 6) Radius: 22 inch (559 mm) radius for Wide-Body models.
- 4. Locking:
  - a. Provide lead post with a concealed a hook bolt lock activated by a keyed cylinder or thumb turn that engages a full height wall channel. Where required, provide a top and bottom spring loaded locking post with interior thumb turn and protection or keyed cylinder and dustproof floor sockets for all drop bolts. Provide rubber bumper at the edge of locking post.
  - b. Intermediate posts:
    - 1) Floor mounted provide intermediate posts a maximum of 10 feet (3048 mm) of curtain length.
    - 2) For counter mounts and at each curve provide intermediate posts a maximum of 6 feet (1828 mm).

- 3) Intermediate posts contain an adjustable concealed spring loaded drop bolt with cylinder locks keyed alike. Provide with dustproof floor sockets for all drop bolts.
  - c. Traveling end post shall have an attached full height protection plate and shall be self locking into a steel V-stop. End post are fixable to a wall when stacked in the opening using top and bottom locking posts.
- C. Side-Folding Glass Vision Panel Grilles: Overhead Door Corporation Model 678. Glass panels shall be cushioned with specially designed vinyl compression gaskets at top and bottom of glazing.
1. Curtain: Aluminum 18 gauge (1.27 mm) with 1/8 inch (3 mm) thick tempered glass viewable area.
    - a. Panel Width: Standard 7 inch (178 mm) with a 4-3/4 inch (121 mm) viewable area.
    - b. Panel Width: Wide-body 11-1/4 inch (286 mm) with a 8-7/8 inch (226 mm) viewable area.
    - c. Frame: Truss like aluminum frame, minimum 4 inch (102 mm) high bottom and 5-1/4 inch (133 mm) high top plates.
  2. Finish:
    - a. Aluminum clear anodized.
    - b. Aluminum color anodized. Color as selected by Architect.
    - c. Duracron acrylic or powder coat paint. Color as selected by Architect.
  3. Track:
    - a. Trolley assemblies shall be 1-1/8 inch (29 mm) and adjustable 1 inch (25 mm) upward or downward without the removal of the curtain.
    - b. Track shall be heavy extruded aluminum 1-3/8 inch (35 mm) wide by 1 5/8 inch (41 mm) high.
    - c. Curves:
      - 1) 90 degrees.
      - 2) 120 degrees.
      - 3) 135 degrees.
      - 4) 150 degrees.
      - 5) Radius: 14 inch (356 mm) for standard models.
      - 6) Radius: 22 inch (559 mm) radius for Wide-Body models.
  4. Locking:
    - a. Provide lead post with a concealed a hook bolt lock activated by a keyed cylinder or thumb turn that engages a full height wall channel. Where required, provide a top and bottom spring loaded locking post with interior thumb turn and protection or keyed cylinder and dustproof floor sockets for all drop bolts. Provide rubber bumper at the edge of locking post.
    - b. Intermediate posts:
      - 1) Floor mounted provide intermediate posts a maximum of 10 feet (3048 mm) of curtain length.
      - 2) For counter mounts and at each curve provide intermediate posts a maximum of 6 feet (1828 mm).
      - 3) Intermediate posts contain an adjustable concealed spring loaded drop bolt with cylinder locks keyed alike. Provide with dustproof floor sockets for all drop bolts.
    - c. Traveling end post shall have an attached full height protection plate and shall be self locking into a steel V-stop. End post are fixable to a wall when stacked in the opening using top and bottom locking posts.
- D. Side-Folding Aluminum Panel Grilles: Overhead Door Corporation Model 679.
1. Curtain: Aluminum 18 gauge (1.27 mm), full height, panels.
    - a. Panel Width: Standard 7 inch (178 mm).

- b. Panel Width: Wide-body 11-1/4 inch (286 mm).
    - c. Frame: Truss like aluminum frame, minimum 4 inch (102 mm) high bottom and 5-1/4 inch (133 mm) high top plates.
  - 2. Finish:
    - a. Aluminum clear anodized.
    - b. Aluminum color anodized. Color as selected by Architect.
    - c. Duracron acrylic or powder coat paint. Color as selected by Architect.
  - 3. Track:
    - a. Trolley assemblies shall be 1-1/8 inch (29 mm) and adjustable 1 inch (25 mm) upward or downward without the removal of the curtain.
    - b. Track shall be heavy extruded aluminum 1-3/8 inch (35 mm) wide by 1-5/8 inch (41 mm) high.
    - c. Curves:
      - 1) 90 degrees.
      - 2) 120 degrees.
      - 3) 135 degrees.
      - 4) 150 degrees.
      - 5) Radius: 14 inch (356 mm) for standard models.
      - 6) Radius: 22 inch (559 mm) radius for Wide-Body models.
  - 4. Locking:
    - a. Provide lead post with a concealed a hook bolt lock activated by a keyed cylinder or thumb turn that engages a full height wall channel. Where required, provide a top and bottom spring loaded locking post with interior thumb turn and protection or keyed cylinder and dustproof floor sockets for all drop bolts. Provide rubber bumper at the edge of locking post.
    - b. Intermediate posts:
      - 1) Floor mounted provide intermediate posts a maximum of 10 feet (3048 mm) of curtain length.
      - 2) For counter mounts and at each curve provide intermediate posts a maximum of 6 feet (1828 mm).
      - 3) Intermediate posts contain an adjustable concealed spring loaded drop bolt with cylinder locks keyed alike. Provide with dustproof floor sockets for all drop bolts.
    - c. Traveling end post shall have an attached full height protection plate and shall be self locking into a steel V-stop. End post are fixable to a wall when stacked in the opening using top and bottom locking posts.
- E. Side-Folding Open Aluminum Grilles: Overhead Door Corporation Model 681.
- 1. Curtain: Constructed of 1 inch (25 mm) aluminum plates spaced at 12 inch (307 mm) horizontal intervals incorporating three vertical rods spaced 1-7/8 inch (49 mm) and covered with aluminum tubes. Aluminum plates shall fit into one piece vertical aluminum tubular hinges.
    - a. Panel Width: Wide-body 11-1/4 inch (286 mm).
    - b. Frame: Truss like aluminum frame, minimum 2 inch (51 mm) high bottom and 5-1/4 inch (133 mm) high top plates.
  - 2. Finish:
    - a. Aluminum clear anodized.
    - b. Aluminum color anodized. Color as selected by Architect.
    - c. Duracron acrylic or powder coat paint. Color as selected by Architect.
  - 3. Track:
    - a. Trolley assemblies shall be 1-1/8 inch (29 mm) and adjustable 1 inch (25 mm) upward or downward without the removal of the curtain.
    - b. Track shall be heavy extruded aluminum 1-3/8 inch (35 mm) wide by 1-5/8 inch (41 mm) high.
    - c. Curves:

- 1) 90 degrees.
  - 2) 120 degrees.
  - 3) 135 degrees.
  - 4) 150 degrees.
  - 5) Radius: 14 inch (356 mm) radius.
  - 6) Radius: 22 inch (559 mm) radius.
4. Locking:
- a. Provide lead post with a concealed a hook bolt lock activated by a keyed cylinder or thumb turn that engages a full height wall channel. Where required, provide a top and bottom spring loaded locking post with interior thumb turn and protection or keyed cylinder and dustproof floor sockets for all drop bolts. Provide rubber bumper at the edge of locking post.
  - b. Intermediate posts:
    - 1) Floor mounted provide intermediate posts a maximum of 10 feet (3048 mm) of curtain length.
    - 2) For counter mounts and at each curve provide intermediate posts a maximum of 6 feet (1828 mm).
    - 3) Intermediate posts contain an adjustable concealed spring loaded drop bolt with cylinder locks keyed alike. Provide with dustproof floor sockets for all drop bolts.
  - c. Traveling end post shall have an attached full height protection plate and shall be self locking into a steel V-stop. End post are fixable to a wall when stacked in the opening using top and bottom locking posts.
- F. Side-Folding Open Aluminum Grilles: Overhead Door Corporation Model 683.
1. Curtain: Constructed of 1/8 inch (3 mm) by 5/8 inch (17 mm) by 6 inch (152 mm) horizontal clear anodized aluminum links that slide into 5/16 inch (8 mm) vertical rods. Links held in place by 1/2 inch (16 mm) clear anodized aluminum (S-126) spacer tubes on alternate rods.
    - a. Panel Width: 6-5/16 inch (160 mm).
  2. Finish:
    - a. Aluminum clear anodized.
    - b. Aluminum color anodized. Color as selected by Architect.
  3. Track:
    - a. Trolley assemblies shall be 1-1/8 inch (29 mm) and adjustable 1 inch (25 mm) upward or downward without the removal of the curtain.
    - b. Track shall be heavy extruded aluminum 1-3/8 inch (35 mm) wide by 1 5/8 inch (41 mm) high.
    - c. Curves:
      - 1) 90 degrees.
      - 2) 120 degrees.
      - 3) 135 degrees.
      - 4) 150 degrees.
      - 5) Radius: 14 inch (356 mm) radius.
  4. Locking:
    - a. Provide lead post with a concealed a hook bolt lock activated by a keyed cylinder or thumb turn that engages a full height wall channel. Where required, provide a top and bottom spring loaded locking post with interior thumb turn and protection or keyed cylinder and dustproof floor sockets for all drop bolts. Provide rubber bumper at the edge of locking post.
    - b. Intermediate posts:
      - 1) Floor mounted provide intermediate posts a maximum of 10 feet (3048 mm) of curtain length.

- 2) For counter mounts and at each curve provide intermediate posts a maximum of 6 feet (1828 mm).
- 3) Intermediate posts contain an adjustable concealed spring loaded drop bolt with cylinder locks keyed alike. Provide with dustproof floor sockets for all drop bolts.
- c. Traveling end post shall have an attached full height protection plate and shall be self locking into a steel V-stop. End post are fixable to a wall when stacked in the opening using top and bottom locking posts.

## 2.3 UNCOILING SECURITY GRILLES

- A. Overhead Coiling Aluminum Grilles: Overhead Door Corporation Model 670 with an option for Manual Emergency Release for power operated doors.
  1. Curtain: Horizontal 5/16 inch (7.8 mm) diameter rods with network of vertically interlocking links to form a pattern. Bottom bar extruded aluminum tubular shape.
    - a. Material: Aluminum.
    - b. Vertical Rod Spacing:
      - 1) 2 inches (51 mm) on center.
      - 2) 1-1/2 inches (38 mm) on center.
    - c. Pattern:
      - 1) Straight lattice; horizontal spacing 3 inches (76 mm) on center.
      - 2) Straight lattice; horizontal spacing 6 inches (152 mm) on center.
      - 3) Straight lattice; horizontal spacing 9 inches (228 mm) on center.
      - 4) Brick pattern; horizontal spacing 4-1/2 inches (114 mm) on center.
      - 5) Infill Panels: Lexan panel in straight lattice pattern 12 inches on center.
  2. Finish:
    - a. Aluminum mill finish.
    - b. Aluminum clear anodized.
    - c. Aluminum bronze anodized.
    - d. Aluminum black anodized.
    - e. Aluminum color as selected by Architect.
    - f. Prime all non-galvanized, exposed ferrous surfaces with black powder coat finish.
  3. Bottom Bar:
    - a. Tubular extruded aluminum, mill finish.
    - b. Tubular extruded aluminum, clear anodized.
    - c. Tubular extruded aluminum, bronze anodized.
    - d. Tubular extruded aluminum, black anodized.
  4. Guides:
    - a. Extruded aluminum shapes with retainer grooves and continuous silicone treated wool-pile strips or PVC inserts to reduce noise and assist operation.
    - b. Guides face mounted on adjacent construction.
    - c. Guides free standing with tubular steel support frames supplied with grilles.
  5. Brackets: Minimum 3/16 inch (4.8 mm) steel to support barrel, counterbalance and hood as applicable.
  6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with maximum deflection of 0.03 inches per foot of span. Counterbalance adjustable by means of an adjusting tension wheel.
  7. Hood:
    - a. Aluminum, mill finish with intermediate supports as required.

- b. Aluminum, clear anodized with intermediate supports as required.
  - c. Aluminum, bronze anodized with intermediate supports as required.
  - d. Aluminum, black anodized with intermediate supports as required.
8. Manual Operation:
- a. Push up.
  - b. Chain hoist.
  - c. Crank.
9. 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 nor more than 1 foot per second.
- a. Sensing Edge Protection:
    - 1) Pneumatic sensing edge.
    - 2) Electric sensing edge.
  - b. Operator Controls: Control stations with open, close, and stop functions.
    - 1) Push-button operation.
    - 2) Key operation.
    - 3) Push-button and key operation.
    - 4) Surface mounting.
    - 5) Flush mounting.
    - 6) For interior location.
    - 7) For exterior location.
    - 8) For both interior and exterior location.
  - 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. Special Operation:
    - 1) Photocell operation.
    - 2) Radio control operation.
    - 3) Vehicle detector operation.
    - 4) Card reader control.
    - 5) Door timer operation.
    - 6) Commercial light package.
    - 7) Explosion and dust ignition proof control wiring.
10. Locking:
- a. Cremone lock.
  - b. Chain keeper locks for chain hoist operation.
  - c. Cylinder lock for electric operation with interlock switch.
  - d. Thumb turns.
- B. Overhead Coiling Aluminum Grilles: Overhead Door Corporation Model 670 with an Automatic Release for power operated doors.
1. Curtain: Horizontal 5/16 inch (7.8 mm) diameter rods with network of vertically interlocking links to form a pattern. Bottom bar extruded aluminum tubular shape.
- a. Material: Aluminum.
  - b. Vertical Rod Spacing:
    - 1) 2 inches (51 mm) on center.
  - c. Pattern:
    - 1) Straight lattice; horizontal spacing 3 inches (76 mm) on center.
    - 2) Straight lattice; horizontal spacing 6 inches (152 mm) on center.
    - 3) Straight lattice; horizontal spacing 9 inches (228 mm) on center.
2. Finish:
- a. Aluminum mill finish.
  - b. Aluminum clear anodized.
  - c. Aluminum bronze anodized.

- d. Aluminum black anodized.
  - e. Aluminum color as selected by Architect.
  - f. Prime all non-galvanized, exposed ferrous surfaces with black powder coat finish.
3. Bottom Bar:
    - a. Tubular extruded aluminum, mill finish.
    - b. Tubular extruded aluminum, clear anodized.
    - c. Tubular extruded aluminum, bronze anodized.
    - d. Tubular extruded aluminum, black anodized.
  4. Guides:
    - a. Extruded aluminum shapes with retainer grooves and continuous silicone treated wool-pile strips or PVC inserts to reduce noise and assist operation.
    - b. Guides face mounted on adjacent construction.
    - c. Guides free standing with tubular steel support frames supplied with grilles.
  5. Brackets: Minimum 3/16 inch (4.8 mm) steel to support barrel, counterbalance and hood as applicable.
  6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with maximum deflection of 0.03 inches per foot of span. Counterbalance adjustable by means of an adjusting tension wheel.
  7. Hood:
    - a. Aluminum, mill finish with intermediate supports as required.
    - b. Aluminum, clear anodized with intermediate supports as required.
    - c. Aluminum, bronze anodized with intermediate supports as required.
    - d. Aluminum, black anodized with intermediate supports as required.
  8. Electric Motor with 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. Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.
    - a. 1/2 horsepower single phase.
      - 1) 115 V
      - 2) 230 V
    - b. 1 horsepower three phase.
      - 1) 230 V.
      - 2) 460 V.
  9. Mounting:
    - a. Front of hood.
    - b. Mounting Left Hand or Right Hand.
  10. Release: Push/Pull Emergency Release Button.
    - a. Surface mount.
    - b. Flush mount.
  11. Entrapment Protection:
    - a. 2 wire electric sensing edge
    - b. Photo cell operation.
  12. Control accessories: Control Panel is to be supplied at same voltage as operator selected.
  13. Locking: Model 670 egress grille self-locking mechanism to prevent forced opening of a closed grille that does not interfere with normal electric operation but fail safe for emergency operation.
- C. Overhead Coiling Metal Grilles: Overhead Door Corporation Model 671 with an option for Manual Emergency Release for power operated doors.

1. Curtain: Horizontal 5/16 inch (7.8 mm) diameter rods with network of vertically interlocking links to form a pattern. Bottom bar extruded aluminum tubular shape.
  - a. Material:
    - 1) Galvanized Steel.
    - 2) Stainless Steel.
  - b. Vertical Rod Spacing:
    - 1) 2 inches (51 mm) on center.
    - 2) 1-1/2 inches (38 mm) on center.
  - c. Pattern:
    - 1) Straight lattice; horizontal spacing 3 inches (76 mm) on center.
    - 2) Straight lattice; horizontal spacing 6 inches (152 mm) on center.
    - 3) Straight lattice; horizontal spacing 9 inches (228 mm) on center.
    - 4) Brick pattern; horizontal spacing 4-1/2 inches (114 mm) on center.
    - 5) Infill Panels: Lexan panel in straight lattice pattern 12 inches on center.
2. Finish:
  - a. Stainless Steel: No. #4 finish.
  - b. Stainless Steel: No. #2B finish.
  - c. Galvanized Steel: Rust inhibitive primer.
  - d. Prime all non-galvanized, exposed ferrous surfaces with black powder coat finish.
3. Bottom Bar:
  - a. Double angle steel bottom bar.
  - b. Double angle stainless steel bottom bar.
4. Guides:
  - a. Extruded aluminum shapes with retainer grooves and continuous silicone treated wool-pile strips or PVC inserts to reduce noise and assist operation.
  - b. Guides face mounted on adjacent construction.
  - c. Guides free standing with tubular steel support frames supplied with grilles.
5. Brackets: Minimum 3/16 inch (4.8 mm) steel to support barrel, counterbalance and hood as applicable.
6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with maximum deflection of 0.03 inches per foot of span. Counterbalance adjustable by means of an adjusting tension wheel.
7. Hood:
  - a. Galvanized steel, 24 gauge (6 mm).
  - b. Primed steel, 24 gauge (6 mm).
  - c. Stainless Steel: No. #4 finish.
  - d. Stainless Steel: No. #2B finish.
8. Manual Operation:
  - a. Push up.
  - b. Chain hoist.
  - c. Crank.
9. 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 nor more than 1 foot per second.
  - a. Sensing Edge Protection:
    - 1) Pneumatic sensing edge.
    - 2) Electric sensing edge.
  - b. Operator Controls: Control stations with open, close, and stop functions.
    - 1) Push-button operation.

- 2) Key operation.
  - 3) Push-button and key operation.
  - 4) Surface mounting.
  - 5) Flush mounting.
  - 6) For interior location.
  - 7) For exterior location.
  - 8) For both interior and exterior location.
  - 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. Special Operation:
    - 1) Photocell operation.
    - 2) Radio control operation.
    - 3) Vehicle detector operation.
    - 4) Card reader control.
    - 5) Door timer operation.
    - 6) Commercial light package.
    - 7) Explosion and dust ignition proof control wiring.
10. Locking:
- a. Cremona lock.
  - b. Chain keeper locks for chain hoist operation.
  - c. Cylinder lock for electric operation with interlock switch.
  - d. Thumb turns.
- D. Overhead Coiling Metal Grilles: Overhead Door Corporation Model 671 with an Automatic Release for power operated doors.
1. Curtain: Horizontal 5/16 inch (7.8 mm) diameter rods with network of vertically interlocking links to form a pattern. Bottom bar extruded aluminum tubular shape.
    - a. Material:
      - 1) Galvanized Steel.
      - 2) Stainless Steel.
    - b. Vertical Rod Spacing:
      - 1) 2 inches (51 mm) on center.
    - c. Pattern:
      - 1) Straight lattice; horizontal spacing 3 inches (76 mm) on center.
      - 2) Straight lattice; horizontal spacing 6 inches (152 mm) on center.
      - 3) Straight lattice; horizontal spacing 9 inches (228 mm) on center.
  2. Finish:
    - a. Stainless Steel: No. #4 finish.
    - b. Galvanized Steel: Rust inhibitive primer.
    - c. Prime all non-galvanized, exposed ferrous surfaces with black powder coat finish.
  3. Bottom Bar:
    - a. Double angle steel bottom bar.
    - b. Double angle stainless steel bottom bar.
  4. Guides:
    - a. Extruded aluminum shapes with retainer grooves and continuous silicone treated wool-pile strips or PVC inserts to reduce noise and assist operation.
    - b. Guides face mounted on adjacent construction.
    - c. Guides free standing with tubular steel support frames supplied with grilles.
  5. Brackets: Minimum 3/16 inch (4.8 mm) steel to support barrel, counterbalance and hood as applicable.

6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with maximum deflection of 0.03 inches per foot of span. Counterbalance adjustable by means of an adjusting tension wheel.
  7. Hood:
    - a. Galvanized steel, 24 gauge (6 mm).
    - b. Primed steel, 24 gauge (6 mm).
    - c. Stainless Steel: No. #4 finish.
    - d. Stainless Steel: No. #2B finish.
  8. Electric Motor with 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. Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.
    - a. 1/2 horsepower single phase.
      - 1) 115 V
      - 2) 230 V
    - b. 1 horsepower three phase.
      - 1) 230 V.
      - 2) 460 V.
  9. Mounting:
    - a. Front of hood.
    - b. Mounting Left Hand or Right Hand.
  10. Release: Push/Pull Emergency Release Button.
    - a. Surface mount.
    - b. Flush mount.
  11. Entrapment Protection:
    - a. 2 wire electric sensing edge.
    - b. Photo cell operation.
  12. Control accessories: Control Panel is to be supplied at same voltage as operator selected.
  13. Locking: Model 670 egress grille self-locking mechanism to prevent forced opening of a closed grille that does not interfere with normal electric operation but fail safe for emergency operation.
- E. Overhead Coiling Aluminum Grilles: Overhead Door Corporation Model 674 for interior applications only.
1. Curtain: Aluminum frame surrounding and capturing .062" (1.57 mm) thick perforated aluminum panels. Perforations shall be 3/16" (4.76 mm) diameter; holes are spaced 7/32" (5.56 mm) apart.
    - a. Material: Aluminum.
  2. Finish:
    - a. Aluminum clear anodized.
    - b. PowderGuard Premium: Weather resistant polyester powder coat color as selected by the Architect.
    - c. Prime all non-galvanized, exposed ferrous surfaces with black powder coat finish.
  3. Bottom Bar:
    - a. Extruded aluminum, clear anodized.
  4. Guides:
    - a. Extruded aluminum shapes with retainer grooves and continuous silicone treated wool-pile strips or PVC inserts to reduce noise and assist operation.
    - b. Guides face mounted on adjacent construction.
    - c. Guides free standing with tubular steel support frames supplied with grilles.

5. Brackets: Minimum 3/16 inch (4.8 mm) steel to support barrel, counterbalance and hood as applicable.
6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with maximum deflection of 0.03 inches per foot of span. Counterbalance adjustable by means of an adjusting tension wheel.
7. Hood:
  - a. Galvanized steel, 24 gauge (6 mm) .
  - b. Primed steel, 24 gauge (6 mm) .
  - c. Aluminum with intermediate supports as required.
8. Manual Operation:
  - a. Push up.
  - b. Chain hoist.
  - c. Crank.
9. 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 nor more than 1 foot per second.
  - a. Sensing Edge Protection:
    - 1) Electric sensing edge.
  - b. Operator Controls: Control stations with open, close, and stop functions.
    - 1) Push-button operation.
    - 2) Key operation.
    - 3) Push-button and key operation.
    - 4) Surface mounting.
    - 5) Flush mounting.
  - c. Special Operation:
    - 1) Vehicle detector operation.
    - 2) Radio control operation.
    - 3) Card reader control.
    - 4) Photocell operation.
    - 5) Door timer operation.
    - 6) Commercial light package.
    - 7) Explosion and dust ignition proof control wiring.
10. Locking:
  - a. Center locking bottom bar, secures grille with 1/2" diameter steel throw rods.
    - 1) Cylinder locks both sides.
    - 2) Thumb turn on secured side.
  - b. Cylinder lock for electric operation with interlock switch.
  - c. Small format interchangeable core.

#### 2.4 ADVANCED PERFORMANCE OVERHEAD COILING GRILLE

- A. RapidGrille AP Model 676 by Overhead Door Corporation.
  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, Rod, and Spacer: No. 4 finish.
      - 2) Stainless Steel Link, Rod, and Spacer: No. 2B finish.
      - 3) Galvanized w/ Rust Inhibitor Steel Link, Rod, and Mill Aluminum Spacer.
      - 4) Mill Aluminum Link, Rod, and Spacer
      - 5) Clear Anodized Aluminum Link, Rod, and Spacer
    - b. Pattern:
      - 1) Straight lattice; horizontal spacing 9 inches (228 mm) on center.

- 2) Brick pattern; 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: PowderGuard
    - 1) PowderGuard Premium: Weather resistant polyester powder coat color as selected by the Architect.
4. Guides: Three angle structural steel high usage guide.
  - a. Finish: PowderGuard Premium powder coated steel in black color.
  - b. Finish: PowderGuard Weathered finish with iron/black powder.
  - c. Finish: PowderGuard Premium Powder coated steel, color as selected by the Architect.
  - d. Finish: PowderGuard Zinc Finish: Industrial textured powder coat scratch resistant coat for added protection.
5. Bottom Bar:
  - a. Tubular extruded aluminum
    - 1) Finish: Mill finish aluminum
  - b. Double structure steel angle
    - 1) Finish: PowderGuard Premium Powder coated steel in black color.
    - 2) Finish: PowderGuard Premium Powder coated steel, color as selected by Architect.
    - 3) Finish: PowderGuard Zinc Finish: Zinc enriched polyester powder coat, 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 grease-able 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. Steel 24 gauge black painted.
  - b. Steel 24 gauge PowderGuard Premium Powder coated, color as selected by Architect.
  - c. Stainless Steel with brush finish.
  - d. Aluminum: Clear anodized.

- e. Aluminum: PowderGuard Premium Powder coated, 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. Steel PowderGuard Premium Powder coated in black color.
  - b. Steel PowderGuard Premium Powder coated, color as selected by Architect.
  - c. Finish: PowderGuard Zinc Finish: Zinc enriched polyester powder coat, color as selected by the 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.

#### 3.4 ADJUSTING

- A. Test security grilles 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.

END OF SECTION