SECTION 08 33 00

COILING DOORS AND GRILLES

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\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada; Rolling Steel Door products.  
This section is based on the products of Richards-Wilcox Canada, which is located at:5100 Timberlea Blvd.Mississauga, ON, Canada L4W 2S5Tel: 905-625-0037Fax: 905-625-0057Email: [request info (marketing@rwdoors.com)](https://arcat.com/rfi?action=email&company=Richards-Wilcox%252BCanada&message=RE%253A%2520Spec%2520Question%2520(08330ric)%253A%2520&coid=43101&spec=08330ric&rep=&fax=905-625-0057)  
Web: <https://www.rwdoors.com>   
 [ [Click Here](https://arcat.com/company/richards-wilcox-canada-43101) ] for additional information.  
Rolltite Door Systems are made from aluminum, steel, or stainless steel available in a variety of gauges with proven track record for durability. These doors are ideal for all types of applications.  
Our rolling steel doors, shutters and grilles require minimal maintenance and are easy to install and are a perfect to fit for your needs. Rolltite doors are built to last.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Rolling steel doors. (R300) (R400)
    2. Insulated rolling steel doors. (R600)
    3. Rolling shutters. (R700)
    4. Overhead coiling grilles. (R800)
  1. RELATED SECTIONS
     1. Section 05 10 00 - Structural Metal Framing.
     2. Section 05 50 00 - Metal Fabrications.
     3. Section 06 10 00 - Rough Carpentry.
     4. Section 08 71 00 - Door Hardware.
     5. Section 09 90 00 - Painting and Coating.
     6. Section 26 05 00 - Common Work Results for Electrical.

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* 1. REFERENCES
     1. American Society of Civil Engineers (ASCE):
        1. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
     2. ASTM International (ASTM):
        1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
        2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
        3. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
  2. SUBMITTALS
     1. Submit under provisions of Section 01 30 00.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. The intent of a mock-up is to demonstrate quality of workmanship and visual appearance.
       2. If the mock-up is not acceptable, rebuild the mock-up until satisfactory results are achieved.
       3. Retain mock-up during construction as a standard for comparison with completed work.
       4. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor, Owner, Construction Manager, and trades involved.
        1. Agenda: Include schedule, responsibilities, critical path items and approvals.
        2. Review: Project conditions, manufacturer requirements, delivery, and storage, staging and sequencing, and protection of completed work.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  3. PROJECT CONDITIONS
     1. 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 recommended limits.
  4. WARRANTY
     1. Manufacturer's 2 year warranty against defects in materials and workmanship.
     2. Manufacturer's 40 year warranty for coating film integrity and 35 year warranty against chalking and fading of coating.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Richards-Wilcox Canada, which is located at:5100 Timberlea Blvd.Mississauga, ON, Canada L4W 2S5Tel: 905-625-0037Fax: 905-625-0057Email: [request info (marketing@rwdoors.com)](https://arcat.com/rfi?action=email&company=Richards-Wilcox%252BCanada&message=RE%253A%2520Spec%2520Question%2520(08330ric)%253A%2520&coid=43101&spec=08330ric&rep=&fax=905-625-0057);Web: <https://www.rwdoors.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00.

\*\* NOTE TO SPECIFIER \*\* Delete article not required or delete basis of design option not required.

* 1. ROLLING STEEL DOORS (R300) (R400)
     1. Basis of Design: Rolltite Series R300 Rolling Steel Doors as manufactured by Richards-Wilcox.
        1. Performance and Design Requirements:
           1. Positive and negative design wind loads in accordance with ASCE 7, and local building codes.

\*\* NOTE TO SPECIFIER \*\* Delete operation option not required.

* + - * 1. Operation: Chain hoist.
        2. Operation: Electric.
      1. Material: Galvanized Steel:ASTM A653/A653M, Structural Quality, G90 coating class.

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + - * 1. Finish: None.
        2. Finish: Prime painted.
        3. Finish: Powder Coated. Color: White topcoat.
        4. Finish: Powder Coated. Color: Gray Topcoat.
        5. Finish: Powder Coated. Color: Tan Topcoat.
        6. Finish: Powder Coated. Color: As selected by Architect from manufacturer's full range.
      1. Components:

\*\* NOTE TO SPECIFIER \*\* Delete curtain option and slat profile option not required.

* + - * 1. Curtain: 22 gage galvanized steel.

Available Sizes (W x H): Up to 12 x 12 ft (3658 x 3658 mm).

* + - * 1. Curtain: 24 gage galvanized steel.

Available Sizes (W x H): Up to 14 x 14 ft (4267 x 4267 mm).

* + - * 1. Slat profile: Flat. Width: 3 inches (76 mm).
        2. Slat profile: Curved. Width: 3 inches (76 mm).
        3. Endlocks: Ends of alternate slats fitted with nylon endlocks.

Provides wearing surface in the guides and maintain slat alignment.

* + - * 1. Bottom Bar: Galvanized steel, single angle, with weatherseal.

Angle Size: 2 x 1-1/2 x inch (51 x 38 mm) 12 gauge steel.

Weatherseal: PVC bulb astragal.

\*\* NOTE TO SPECIFIER \*\* Delete locking options not required.

* + - * 1. Locking: Slide bolts mounted on bottom bar, with padlock provisions.
        2. Locking: Chain lock.
        3. Hood: 24 gauge galvanized steel, with closed ends.
        4. Guides: 12 gauge galvanized steel. Roll formed. Depth: 3-1/2 inches (89 mm).
        5. Barrel Assembly:

Barrel: Steel pipe. Size and wall thickness to limit deflection to 0.03 inch per ft (2.5 mm per m) of width,

Helical Torsion Springs: Oil tempered. Mounted on steel inner shaft.

\*\* NOTE TO SPECIFIER \*\* Delete cycle life options not required.

Cycle Life: 25,000.

Cycle Life: 50,000.

Cycle Life: 100,000.

End Bearings: Self-lubricating ball bearings.

* + - * 1. Support Brackets: Steel.

\*\* NOTE TO SPECIFIER \*\* Delete hardware and operator options not required.

* + - * 1. Hardware: For mounting to steel.
        2. Hardware: For mounting to wood or block.
        3. Hardware: For mounting to masonry jambs.
        4. Operator: Manaras Model OGH-6112.
        5. Operator: LiftMaster Model MH.
        6. Operator: LiftMaster Model H.
        7. Operator: LiftMaster Model GH.
      1. Options

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Steel Mounting Plates: Lateral jamb extensions to provide door support.
        2. Top Draft Stop: Seals tight at the header to reduce air infiltration.
        3. Guide Weather Seal: Seal tight at jambs to reduce air infiltration.
        4. Vision Panels; Flat Slats Only: 5 x 3/4 inches (127 x 19 mm) cut outs spaced approximately 3 inches apart and covered with clear Lexan.
        5. Structural Steel Upgrade Guide: 3 piece structural steel guides.
        6. Windload: Available design to +40/-37 for 14 ft (4267 mm) wide (test) Model 324 (24 gauge). Windload varies by model.
    1. Basis of Design: Rolltite Series R400 Rolling Steel Doors as manufactured by Richards-Wilcox.
       1. Performance and Design Requirements:
          1. Positive and negative design wind loads in accordance with ASCE 7, and local building codes.

\*\* NOTE TO SPECIFIER \*\* Delete operation options not required.

* + - * 1. Operation: Chain hoist.
        2. Operation: Electric.
        3. Operation: Manual, push up.
      1. Available Sizes (W x H): Up to 40 x 30 ft (12192 x 9144 mm). Varies by Model; gauge thickness.

\*\* NOTE TO SPECIFIER \*\* Delete material options not required. then delete finish options not required.

* + - 1. Material: Galvanized Steel: ASTM A653/A653M, Structural Quality, G90 coating class.
         1. Finish: None.
         2. Finish: Prime painted.
         3. Finish: Powder Coated. Color: White topcoat.
         4. Finish: Powder Coated. Color: Gray Topcoat.
         5. Finish: Powder Coated. Color: Tan Topcoat.
         6. Finish: Powder Coated. Color: As selected by Architect from manufacturer's full range
      2. Material: Type 304 Stainless steel. Finish: No. 4 satin.
      3. Material: Type 316 Stainless steel. Finish: No. 4 satin.
      4. Material: Aluminum. Extrusions: ASTM B221. Sheet: ASTM B209
         1. Finish: Clear anodized.
         2. Finish: Powder coated. Color: As selected by Architect from manufacturer's full range.
      5. Components:

\*\* NOTE TO SPECIFIER \*\* Delete curtain and slat profile options not required.

* + - * 1. Curtain: 18 gage galvanized grade 80 steel.
        2. Curtain: 20 gage galvanized grade 80 steel.
        3. Curtain: 22 gage galvanized grade 80 steel.
        4. Curtain: 24 gage galvanized grade 80 steel.
        5. Curtain: 18 gage stainless steel.
        6. Curtain: 20 gage stainless steel.
        7. Curtain: 22 gage stainless steel.
        8. Curtain: 24 gage stainless steel.
        9. Curtain: 16 gage aluminum.
        10. Slat profile: Flat. Width: 3 inches (76 mm).
        11. Slat profile: Curved. Width: 3 inches (76 mm).
        12. Slat Profile: Perforated. Width: 3 inches (76 mm).
        13. Endlocks: Ends of alternate slats fitted with endlocks.

Provides wearing surface in the guides and maintain slat alignment.

* + - * 1. Bottom Bar: Steel, double angle, with weatherseal. Powder Coat: Black.

Angle Size: 2 x 2 x 1/8 inch (51 x 51 x 3 mm).

Weatherseal: PVC bulb astragal.

\*\* NOTE TO SPECIFIER \*\* Delete locking options not required.

* + - * 1. Locking: Slide bolts mounted on bottom bar, with padlock provisions.
        2. Locking: Chain lock.

\*\* NOTE TO SPECIFIER \*\* Delete hood options not required.

* + - * 1. Hood: 24 gauge galvanized steel, with closed ends.

Baffle: 8 inch (203 mm) PVC rubber. Riveted to inside of hood.

* + - * 1. Hood: 24 gauge stainless steel, with closed ends.

Baffle: 8 inch (203 mm) PVC rubber. Riveted to inside of hood.

* + - * 1. Hood: 24 gauge aluminum, with closed ends.

Baffle: 8 inch (203 mm) PVC rubber. Riveted to inside of hood.

* + - * 1. Guides: 12 gauge galvanized steel. Powder Coat: Black.

Cutout: 30 inch. Headstops: Removable

\*\* NOTE TO SPECIFIER \*\* Delete guide weather seal options not required.

* + - * 1. Guide Weather Seal: Single piece vinyl weather seal attached to door guide on non-coil side.
        2. Guide Weather Seal: Brush seal with retainer.
        3. Barrel Assembly:

Barrel: Steel pipe. Size and wall thickness to limit deflection to 0.03 inch per ft of width,

Helical Torsion Springs: Oil tempered. Mounted on steel inner shaft.

\*\* NOTE TO SPECIFIER \*\* Delete cycle life options not required.

Cycle Life: 25,000.

Cycle Life: 50,000.

Cycle Life: 100,000.

End Bearings: Self-lubricating ball bearings.

* + - * 1. Support Brackets: Steel.

\*\* NOTE TO SPECIFIER \*\* Delete operator options not required.

* + - * 1. Operator: Manaras Model OGH-6112.
        2. Operator: LiftMaster Model MH.
        3. Operator: LiftMaster Model H.
        4. Operator: LiftMaster Model GH.
      1. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Electric Operation: Push button. Motorized.

\*\* NOTE TO SPECIFIER \*\* Mounting plates are available upon request. Delete if not required.

Motor mounting plates.

* + - * 1. Dual Slide Bolt Locks: Attached to bottom.

Suitable for padlocks (by others) for manual push-up operation.

* + - * 1. Vision Panels: 5 x 3/4 inch (127 x 19 mm) cut out spaced approximately 3 inches (76 mm) apart and covered with clear Lexan; flat slat only.
        2. Hood Baffle: 8 inch (203 mm) wide PVC rubber riveted to the inside of the hood.
        3. Insulation: 5/8 inch (16 mm) thick polystyrene foam, R-value 7.2.
        4. Insulation: 5/8 inch (16 mm) thick polyurethane foam, R-value 7.2.

\*\* NOTE TO SPECIFIER \*\* Windload varies by model. For windload availability on larger sizes contact the Manufacturer.

* + - * 1. Windload: Available design to +/- 45 psf for 16 ft wide (test size).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. INSULATED ROLLING STEEL DOORS (R600)
     1. Basis of Design: Rolltite Series R600 Rolling Steel Doors as manufactured by Richards-Wilcox.
        1. Performance and Design Requirements:
           1. Positive and negative design wind loads in accordance with ASCE 7, and local building codes.

\*\* NOTE TO SPECIFIER \*\* Delete operation options not required.

* + - * 1. Operation: Chain hoist.
        2. Operation: Electric.
        3. Operation: Manual, push up.
      1. Available Sizes (W x H): Up to 40 x 30 ft (12192 x 9144 mm). Varies by Model; gauge thickness.

\*\* NOTE TO SPECIFIER \*\* Delete material options not required. Then delete finish options not required.

* + - 1. Material: Galvanized Steel: ASTM A653/A653M, Structural Quality, G90 coating class.
         1. Finish: None.
         2. Finish: Prime painted.
         3. Finish: Powder Coated. Color: White topcoat.
         4. Finish: Powder Coated. Color: Gray Topcoat.
         5. Finish: Powder Coated. Color: Tan Topcoat.
         6. Finish: Powder Coated. Color: As selected by Architect from manufacturer's full range
      2. Material: Type 304 Stainless steel. Finish: No. 4 satin.
      3. Material: Type 316 Stainless steel. Finish: No. 4 satin.
      4. Components:

\*\* NOTE TO SPECIFIER \*\* Delete face slats options not required and back slats options not required.

* + - * 1. Face Slats: 18 gage galvanized steel. Slat Profile: Flat.
        2. Face Slats: 20 gage galvanized steel. Slat Profile: Flat.
        3. Face Slats: 22 gage galvanized steel. Slat Profile: Flat.
        4. Face Slats: 24 gage galvanized steel. Slat Profile: Flat.
        5. Face Slats: 18 gage stainless steel. Slat Profile: Flat.
        6. Face Slats: 20 gage stainless steel. Slat Profile: Flat.
        7. Face Slats: 22 gage stainless steel. Slat Profile: Flat.
        8. Face Slats: 24 gage stainless steel. Slat Profile: Flat.
        9. Back Slats: 22 gage galvanized steel.
        10. Back Slats: 24 gage galvanized steel.
        11. Back Slats: 22 stainless steel.
        12. Back Slats: 24 stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete insulation options not required.

* + - * 1. Insulation: 5/8 inch (16 mm) thick polystyrene foam, R-value 7.2.
        2. Insulation: 5/8 inch (16 mm) thick polyurethane foam, R-value 7.2.
        3. Endlocks: Ends of alternate slats fitted with endlocks.

Provides wearing surface in the guides and maintain slat alignment.

* + - * 1. Bottom Bar: Steel, double angle, with weatherseal. Powder Coat: Black.

Angle Size: 2 x 2 x 1/8 inch (51 x 51 x 3 mm).

Weatherseal: PVC bulb astragal.

* + - * 1. Vision Panels: 5 x 3/4 inch (127 x 19 mm) cut outs spaced approximately 3 inches (76 mm) apart, covered with clear Lexan.

\*\* NOTE TO SPECIFIER \*\* Delete locking options not required.

* + - * 1. Locking: Slide bolts mounted on bottom bar, with padlock provisions.
        2. Locking: Chain lock.

\*\* NOTE TO SPECIFIER \*\* Delete hood option not required.

* + - * 1. Hood: 24 gage galvanized steel, with closed ends.

Baffle: 8 inch (203 mm) PVC rubber. Riveted to inside of hood.

* + - * 1. Hood: 24 gage stainless steel, with closed ends.

Baffle: 8 inch (203 mm) PVC rubber. Riveted to inside of hood.

* + - * 1. Guides: 12 gage galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete weather seal options not required.

* + - * 1. Guide Weather Seal: Single piece vinyl weather seal attached to door guide on non-coil side.
        2. Guide Weather Seal: Brush seal with retainer.
        3. Barrel Assembly:

Barrel: Steel pipe. Size and wall thickness to limit deflection to 0.03 inch per ft (2.5 mm per m) of width.

Helical Torsion Springs: Oil tempered. Mounted on steel inner shaft.

\*\* NOTE TO SPECIFIER \*\* Delete cycle life options not required.

Cycle Life: 25,000.

Cycle Life: 50,000.

Cycle Life: 100,000.

End Bearings: Self-lubricating ball bearings.

* + - * 1. Support Brackets: Steel.

\*\* NOTE TO SPECIFIER \*\* Delete operator options not required.

* + - * 1. Operator: Manaras Model OGH-6112.
        2. Operator: LiftMaster Model MH.
        3. Operator: LiftMaster Model H.
        4. Operator: LiftMaster Model GH.
      1. Options:
         1. Electric Operation: Push button. Motorized.

\*\* NOTE TO SPECIFIER \*\* Mounting plates are available upon request. Delete if not required.

Motor mounting plates.

* + - * 1. Dual Slide Bolt Locks: Attached to bottom.

Suitable for padlocks (by others) for manual push-up operation.

* + - * 1. Vision Panels: 5 x 3/4 inch (127 x 19 mm) cut out spaced approximately 3 inches apart and covered with clear Lexan; flat slat only.

\*\* NOTE TO SPECIFIER \*\* Windload varies by model. For windload availability on larger sizes contact the Manufacturer.

* + - * 1. Windload: Available design to +/- 55 psf for 16 ft wide (22 gauge test size).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ROLLING SHUTTERS (R700)
     1. Basis of Design: Rolltite Series R700 Coiling Counter Shutters as manufactured by Richards-Wilcox.
        1. Performance and Design Requirements:
           1. Positive and negative design wind loads in accordance with ASCE 7, and local building codes.
           2. Operation Up to 10 ft 4 inches wide door: Manual, push up.
           3. Operation for doors wider than 10 ft 4 inches (3150 mm): Drive crank.
           4. Operation: Tubular motor.
        2. Available Sizes (W x H): Up to 10 ft 4 inches x 30 ft (3150 x 9144 mm). Varies by Model; gauge thickness.

\*\* NOTE TO SPECIFIER \*\* Delete material options not required. then delete finish options not required.

* + - 1. Material: Galvanized Steel: ASTM A653/A653M, Structural Quality, G90 coating class.
         1. Finish: None.
         2. Finish: Prime painted.
         3. Finish: Powder Coated. Color: White topcoat.
         4. Finish: Powder Coated. Color: Gray Topcoat.
         5. Finish: Powder Coated. Color: Tan Topcoat.
         6. Finish: Powder Coated. Color: As selected by Architect from manufacturer's full range.
      2. Material: Aluminum. Extrusions: ASTM B221. Sheet: ASTM B209
         1. Finish: Clear anodized.
         2. Finish: Powder coated. Color: \_\_\_\_\_\_\_\_.
         3. Finish: Powder coated. Color: As selected by Architect from manufacturer's full range.
      3. Components:

\*\* NOTE TO SPECIFIER \*\* Delete curtain material option not required.

* + - * 1. Curtain Material: 22 gage galvanized steel.
        2. Curtain Material: 22 gage aluminum.
        3. Slat Profile: Flat.
        4. Slat Size: Face Width: 1-1/2 inch (38 mm). Depth: 1/2 inch (13 mm).
        5. Endlocks: Ends of alternate slats fitted with endlocks.
        6. Bottom Bar: Extruded aluminum, single angle, with dual slide bolts and bottom astragal.
        7. Locks: Keyed cylinder type.

\*\* NOTE TO SPECIFIER \*\* Delete key locks and keys per lock options not required.

Key Locks: Alike.

Key Locks: Differently.

Key Locks: As directed by Owner.

Keys per Lock: 2.

Keys per Lock: \_\_.

\*\* NOTE TO SPECIFIER \*\* Delete hood option not required.

* + - * 1. Hood: 24 gage galvanized steel sheet, with closed ends.
        2. Hood: 0.0201 inch (0.51 mm) thick aluminum sheet, with closed ends.
        3. Guides: Box shaped, extruded aluminum,

Two-piece configurations.

Soft brush guide runners.

Bell mouths

Head stop.

* + - * 1. Barrel Assembly:

Barrel: Minimum 4-1/2 inch (114 mm) O.D. pipe. Deflection: 0.03 inch per ft (2.5 mm per m) or less under full load.

Spring Tension Assembly: Supported within barrel by precision ball bearings.

Curtain Weight Counterbalance: Oil-tempered, helically wound torsion springs, grease packed and mounted to steel torsion shaft.

\*\* NOTE TO SPECIFIER \*\* Delete life cycles option not required.

Spring Assembly Life Cycles: \_\_\_\_\_\_.

Spring Assembly Life Cycles: 20,000.

* + - * 1. Head Plates: Steel plate.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. OVERHEAD COILING GRILLES
     1. Basis of Design: Rolltite Series R800 overhead Coiling Grilles as manufactured by Richards-Wilcox.
        1. Available Sizes (W x H): Up to 24 ft x 12 ft 6 inches (7315 x 3810 mm). Varies by Model; gauge thickness.
        2. Material: Aluminum. Extrusions: ASTM B221. Sheet: ASTM B209

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + - * 1. Anodized Finish: Clear.
        2. Anodized Finish: Black.
        3. Anodized Finish: Dark Bronze.
        4. Anodized Finish: Light bronze.
        5. Anodized Finish: Champagne.
        6. Anodized Finish: \_\_\_\_\_\_\_\_.
        7. Anodized Finish: As selected by Architect from manufacturer's full range.
      1. Components:

\*\* NOTE TO SPECIFIER \*\* Delete Grille options not required.

* + - * 1. Grille: Solid aluminum.
        2. Grille: Perforated aluminum.
        3. Grille: Straight grille pattern.
        4. Grille: Brick pattern.
        5. Grille: Polycarbonate panels.
        6. Aluminum Rods: 5/16 inch (8 mm) diameter spaced 1-3/4 inches (44 mm) on center vertically.
        7. Aluminum Horizontal Links: 1/8 x 5/8 x 4-1/4 inch (3 x 16 x 108 mm) spaced 9 inches (229 mm) on center.

Covered by Aluminum Spacer Tubes, 1/2 inch (13 mm) diameter on every other rod.

* + - * 1. End Links: Aluminum.
        2. Bottom Bar: Tubular aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete locking options not required. Delete key locks and keys per lock options not required.

* + - * 1. Locking: Slide bolts, with padlock provisions.
        2. Locking: Chain lock.
        3. Locking: Keyed Cylinder Locks:

Key Locks: Alike.

Key Locks: Differently.

Key Locks: As directed by Owner.

Keys per Lock: 2.

Keys per Lock: \_\_\_.

* + - * 1. Hood: 24 gage aluminum, with closed ends.
        2. Guides: Aluminum.
        3. Barrel Assembly:

Barrel: Steel pipe, size and wall thickness to limit deflection to 0.03 inch per ft (2.5 mm per m) of width.

Springs: Oil tempered, helical torsion springs, 20,000 cycle life, mounted on steel inner shaft.

End Bearings: Self-lubricating ball bearings.

Support Brackets: Steel.

\*\* NOTE TO SPECIFIER \*\* Delete operator options not required.

Operator: Manaras Model OGH-6112.

Operator: LiftMaster Model MH.

Operator: LiftMaster Model H.

Operator: LiftMaster Model GH.

\*\* NOTE TO SPECIFIER \*\* Delete mounting and operation options not required.

* + - 1. Mounting: Face of wall.
      2. Mounting: Between jambs.
      3. Operation: Manual
      4. Operation: Cranks.
      5. Operation: Hoist.
      6. Operation: Electric.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until the substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturers recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION