SECTION 08 36 16

SECTIONAL OVERHEAD DOORS

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\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada; Sectional Overhead 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:  [marketing@rwdoors.com](mailto:marketing@rwdoors.com?subject=RE:%20Spec%20Question%20(08360ric):%20)  
Web: <https://www.rwdoors.com>   
[[Click here](http://www.arcat.com/company/43101)] for additional information.  
   
 Richards-Wilcox Canada is the proven leader in the residential and industrial sectional door industry.  
   
 Our commitment is to be the highest quality, most competitive door systems manufacturer in the world.  
   
 R-W uses the latest technology in continuous polyurethane manufacturing processes combined with design ingenuity that has resulted in world class door systems characterized by superior adhesion and structural integrity.

1. GENERAL
   1. SECTION INCLUDES

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

* + 1. Insulated Steel Sectional Overhead Doors.
    2. Aluminum Sectional Overhead Doors.
    3. Hardware.
    4. Electric Operators and Controls.
  1. RELATED SECTIONS

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

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
    2. Section 04 22 00 - Surface-Bonded Concrete Unit Masonry.
    3. Section 05 50 00 - Metal Fabrications.
    4. Section 06 11 00 - Wood Framing.
    5. Section 07 90 00 - Joint Protection.
    6. Section 08 71 53 - Security Door Hardware.
    7. Section 09 90 00 - Painting and Coating.
    8. Section 11 12 26 - Parking Fee Coin Collection Equipment.
    9. Section 11 13 00 - Loading Dock Equipment
    10. Section 26 27 16 - Electrical Cabinets and Enclosures.
    11. Section 26 05 00 - Common Work Results for Electrical.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
  1. DESIGN / PERFORMANCE REQUIREMENTS
     1. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs for wind loads as required. Delete those not required.

* + - 1. Design pressure: Standard wind load of 60.5 mph/97 km/h (9.39 psf/0.45 kPa).
      2. Design pressure: Wind load of 75.5 mph/121 km/h (14.62 psf/0.70 kPa).
      3. Design pressure: Wind load of 90.3 mph/144.5 km/h (20.88 psf/1.0 kPa).

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs for power operator requirements. Delete if not required.

* + 1. Wiring Connections: Requirements for electrical characteristics.
       1. 115 volts, single phase, 60 Hz.
       2. 230 volts, single phase, 60 Hz.
       3. 230 volts, three phase, 60 Hz.
       4. 460 volts, three phase, 60 Hz.
       5. 575 volts, three phase, 60 Hz.
    2. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00.
     2. 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.
     3. Shop Drawings: Clearly show and describe in detail, detailed door assemblies and adjacent construction, including elevations, sections and details of door, track, hardware and operating components, dimensions, gauges, finishes and relationship of door, track, hardware, and operating components to adjacent construction.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
    2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
    3. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
    4. Operation and Maintenance Data.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
     2. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.
     3. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc./ULC/CSA acceptable to authority having jurisdiction as suitable for purpose specified.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store products in manufacturer's unopened packaging until ready for installation.
     2. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
     3. Store materials in a dry, warm, ventilated weathertight location.
  3. PROJECT CONDITIONS
     1. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

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:  [marketing@rwdoors.com](mailto:marketing@rwdoors.com?subject=RE:%20Spec%20Question%20(08360ric):%20);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 provisions of Section 01 60 00.

\*\* NOTE TO SPECIFIER \*\* Select the overhead door types required for the project from the following paragraphs. Delete the paragraphs for the doors not required. If multiple door types are required clearly indicate the location of each on the drawings. Please note that Insulated CE Compliant Doors are intended for the European market only.

* 1. INSULATED STEEL SECTIONAL OVERHEAD DOORS

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Thermatite Model T-150 Insulated Steel Door sections are available in maximum opening width of 22 feet (8706 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Thermatite Model T-150-MR / T150 1-1/2 inch.
       1. Door Assembly: Metal/foam/metal sandwich panel construction. Doors comply with:
          1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) ship-lap with thermal break.
       4. Section Thickness: 1.50 inches (38 mm).
       5. Face Sheet Profile:

\*\* NOTE TO SPECIFIER \*\* Select the exterior surface option required and delete the one not required.

* + - * 1. T-150-MR, Multi-Rib pattern with a non-repeating random stucco surface texture.
        2. T-150 1-1/2 inch, Ribbed pattern with a non-repeating random stucco surface texture.
      1. Exterior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      2. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
      3. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      4. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
      5. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
      3. Thermal Value: R=13.21 ft2h F/Btu.

\*\* NOTE TO SPECIFIER \*\* Select Windows or Full Vision Sections if required and delete if not required. from the following window options. Delete if not required.

* + - 1. Windows:

\*\* NOTE TO SPECIFIER \*\* Select the window option required and delete those not required.

* + - * 1. Type AA: Dual Acrylic 26 inches by 13 inches (660 mm by 330 mm).
        2. Type B: Sealed glass 24 inches by 6 inches (610 mm by 152 mm).
        3. Type CPL: Sealed glass 24 inches by 8 inches (610 mm by 203 mm).
        4. Type D: Sealed glass 34 inches by 16 inches (864 mm by 406 mm).
        5. Type E: Sealed glass 24 inches by 12 inches (610 mm by 305 mm).
      1. Full Vision Sections: Type FV full vision aluminum glazing section.
         1. Color:

\*\* NOTE TO SPECIFIER \*\* Select from the following color options. Delete if not required.

White.

Mill finish.

* + - * 1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

1/8 inch (3 mm) acrylic.

1/8 inch (3 mm) polycarbonate.

1/8 inch (3 mm) plain glass.

1/8 inch (3 mm) tempered glass.

1/2 inch (12.7 mm) sealed plain glass.

1/2 inch (12.7 mm) sealed tempered glass.

\*\* NOTE TO SPECIFIER \*\* Select from the following two color option groups and delete the one not required.

* + - 1. Colors:

\*\* NOTE TO SPECIFIER \*\* Select one exterior color option and delete the one not required.

* + - * 1. Exterior, Manufacturer's standard White.
        2. Exterior, Manufacturer's standard Brown.
        3. Interior, Manufacturer's standard White.
      1. Colors:
         1. Exterior, Manufacturer's standard Silver.
         2. Interior, Manufacturer's standard Silver.
      2. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      3. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      4. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: PVC/Vinyl type.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Bottom seal: 3 inch (76 mm) vinyl retained in aluminum extrusion.
        2. Bottom seal: 4 inch (102 mm) vinyl retained in aluminum extrusion.
        3. Top seal: PVC/Vinyl type.
        4. Jamb seal: Dual fin vinyl/steel.
        5. Jamb seal: Dual fin vinyl/aluminum.
        6. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Thermatite Model T-175 Insulated Steel Door sections are available in maximum opening width of 36 feet 2 inches (11024 mm), and a maximum opening height of 22 feet (6706 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Thermatite Model T-175MR / T175 1-3/4 inch.
       1. Door Assembly: Metal/foam/metal sandwich panel construction. Doors comply with:
          1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) ship-lap, with thermal break.
       4. Section Thickness: 1.75 inches (45 mm).
       5. Face Sheet Profile:

\*\* NOTE TO SPECIFIER \*\* Select the exterior surface option required and delete the one not required.

* + - * 1. T-175MR, Multi-Rib pattern with a non-repeating random stucco surface texture.
        2. T175 1-3/4 inch, Ribbed pattern with a non-repeating random stucco surface texture.
      1. Exterior Steel: Pre-painted 0.019 inches (0.48 mm), hot-dipped galvanized.
      2. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
      3. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      4. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
      5. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
      3. Thermal Value: R=16.00 ft2h F/Btu.

\*\* NOTE TO SPECIFIER \*\* Select Windows or Full Vision Sections if required and delete if not required. from the following window options. Delete if not required.

* + - 1. Windows:

\*\* NOTE TO SPECIFIER \*\* Select the window option required and delete those not required.

* + - * 1. Type AA: Dual acrylic 26 inches by 13 inches (660 mm by 330 mm).
        2. Type B: Sealed glass 24 inches by 6 inches (610 mm by 152 mm).
        3. Type CPL: Sealed glass 24 inches by 8 inches (610 mm by 203 mm).
        4. Type D: Sealed glass 34 inches by 16 inches (864 mm by 406 mm).
        5. Type E: Sealed glass 24 inches by 12 inches (610 mm by 305 mm).
      1. Full Vision Sections: Type FV full vision aluminum glazing section.
         1. Color:

\*\* NOTE TO SPECIFIER \*\* Select from the following color options. Delete if not required.

White.

Mill finish.

Clear anodized.

* + - * 1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

1/8 inch (3 mm) acrylic.

1/8 inch (3 mm) polycarbonate.

1/8 inch (3 mm) plain glass.

1/8 inch (3 mm) tempered glass.

1/4 inch (6.3 mm) acrylic.

1/4 inch (6.3 mm) polycarbonate.

1/4 inch (6.3 mm) plain glass.

1/4 inch (6.3 mm) tempered glass.

1/2 inch (12.7 mm) sealed plain glass.

1/2 inch (12.7 mm) sealed tempered glass

\*\* NOTE TO SPECIFIER \*\* Select from the following exterior color options. Delete the one not required.

* + - 1. Colors:
         1. Exterior, Manufacturer's standard White.
         2. Exterior, Manufacturer's standard Brown.
         3. Interior, Manufacturer's standard White.
      2. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      3. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      4. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: 3 inch (76 mm) vinyl retained in PVC extrusion.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Bottom seal: 3 inch (76 mm) vinyl retained in aluminum extrusion
        2. Bottom seal: 4 inch (102 mm) vinyl retained in aluminum extrusion.
        3. Top seal: PVC/Vinyl type.
        4. Jamb seal: Dual fin vinyl/steel.
        5. Jamb seal: Dual fin vinyl/aluminum.
        6. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Thermatite Model T200-MR / T200 2 inch Insulated Steel Door sections are available in a maximum opening width of 30 feet 2 inches (9195 mm) and a maximum height of 22 feet (6706 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Thermatite Model T200-MR / T200 2 inch.
       1. Door Assembly: Metal/foam/metal sandwich panel construction. Doors comply with:
          1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) ship-lap.
       4. Section Thickness: 2 inches (51 mm).
       5. Face Sheet Profile:

\*\* NOTE TO SPECIFIER \*\* Select the exterior surface option required and delete the one not required.

* + - * 1. T-200-MR, Multi-Rib pattern with a non-repeating random stucco surface texture.
        2. T-200 2 inch, Ribbed pattern with a non-repeating random stucco surface texture.
      1. Exterior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      2. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
      3. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      4. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
      5. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
      3. Thermal Value: R=18.28 ft2h F/Btu, (U=0.310 W/m2K).

\*\* NOTE TO SPECIFIER \*\* Select Windows or Full Vision Sections if required and delete if not required. from the following window options. Delete if not required.

* + - 1. Windows:

\*\* NOTE TO SPECIFIER \*\* Select the window option required and delete those not required.

* + - * 1. Type AA: Dual acrylic 26 inches by 13 inches (660 mm by 330 mm).
        2. Type CPL: Sealed glass 24 inches by 8 inches (610 mm by 203 mm).
        3. Type D: Sealed glass 34 inches by 16 inches (864 mm by 406 mm).
        4. Type E: Sealed glass 24 inches by 12 inches (610 mm by 305 mm).
      1. Full Vision Sections: Type FV full vision aluminum glazing section.
         1. Color:

White.

* + - * 1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

1/8 inch (3 mm) acrylic.

1/8 inch (3 mm) polycarbonate.

1/8 inch (3 mm) plain glass.

1/8 inch (3 mm) tempered glass.

1/4 inch (6.3 mm) acrylic.

1/4 inch (6.3 mm) polycarbonate.

1/4 inch (6.3 mm) plain glass.

1/4 inch (6.3 mm) tempered glass.

1/2 inch (12.7 mm) sealed plain glass.

1/2 inch (12.7 mm) sealed tempered glass.

* + - 1. Exterior Colors:
         1. Manufacturer's standard White.
      2. Interior Colors:
         1. Manufacturer's standard White.
      3. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      4. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      5. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: 3 inch (76 mm) vinyl retained in aluminum extrusion.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Bottom seal: 4 inch (102 mm) vinyl retained in aluminum extrusion.
        2. Top seal: PVC/Vinyl type.
        3. Jamb seal: Dual fin vinyl/steel.
        4. Jamb seal: Dual fin vinyl/aluminum.
        5. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Thermatite Model T200C-MR / T200C Insulated Steel Door sections have the following characteristics:

* + 1. Richards-Wilcox Canada Thermatite Model T200C-MR / T200C; 2 inch thick.
       1. Door Assembly: Metal/foam/metal sandwich panel construction. Doors comply with:
          1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) tongue and groove, pvc thermal break.
       4. Section Thickness: 2 inches (51 mm).
       5. Face Sheet Profile:

\*\* NOTE TO SPECIFIER \*\* Select the exterior surface option required and delete the one not required.

* + - * 1. T200C-MR, Multi-Rib pattern with a non-repeating random stucco surface texture.
        2. T200C, 2 inch, Ribbed pattern with a non-repeating random stucco surface texture.
      1. Exterior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      2. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
      3. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      4. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
      5. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
      3. Thermal Value: R=18.28 ft2h F/Btu.

\*\* NOTE TO SPECIFIER \*\* Select Windows or Full Vision Sections if required and delete if not required. from the following window options. Delete if not required.

* + - 1. Windows:

\*\* NOTE TO SPECIFIER \*\* Select the window option required and delete those not required.

* + - * 1. Type AA: Dual acrylic 26 inches by 13 inches (660 mm by 330 mm).
        2. Type CPL: Sealed glass 24 inches by 8 inches (610 mm by 203 mm).
        3. Type D: Sealed glass 34 inches by 16 inches (864 mm by 406 mm).
        4. Type E: Sealed glass 24 inches by 12 inches (610 mm by 305 mm).
      1. Full Vision Sections: Type FV full vision aluminum glazing section.
         1. Color:

Almond.

Black.

Bronze.

Brown.

Cafe.

Slate Grey.

Desert Tan.

Sandstone.

* + - * 1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

1/8 inch (3 mm) acrylic.

1/8 inch (3 mm) polycarbonate.

1/8 inch (3 mm) plain glass.

1/8 inch (3 mm) tempered glass.

1/4 inch (6.3 mm) acrylic.

1/4 inch (6.3 mm) polycarbonate.

1/4 inch (6.3 mm) plain glass.

1/4 inch (6.3 mm) tempered glass.

1/2 inch (12.7 mm) sealed plain glass.

1/2 inch (12.7 mm) sealed tempered glass.

* + - 1. Exterior Colors:
         1. Manufacturer's standard Almond.
         2. Manufacturer's standard Black.
         3. Manufacturer's standard Bronze.
         4. Manufacturer's standard Brown.
         5. Manufacturer's standard Cafe.
         6. Manufacturer's standard Slate Grey.
         7. Manufacturer's standard Desert Tan.
         8. Manufacturer's standard Sandstone.
      2. Interior Colors:
         1. Manufacturer's standard White.
      3. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      4. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      5. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, extruded seal between sections.
         2. Standard bottom seal: 3 inch (76 mm) vinyl retained in aluminum extrusion.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Bottom seal: 4 inch (102 mm) vinyl retained in aluminum extrusion.
        2. Top seal: PVC/Vinyl type.
        3. Jamb seal: Dual fin vinyl/steel.
        4. Jamb seal: Dual fin vinyl/aluminum.
        5. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Thermatite Model T200A-MR / T200-A Insulated Steel Door sections are available in a maximum opening width of 24 feet 2 inches (7366 mm) and a maximum height of 22 feet (6706 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Thermatite Model T-200A-MR / T-200-A.
       1. Door Assembly: Metal/foam/metal sandwich panel construction. Doors comply with:
          1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) ship-lap.
       4. Section Thickness: 2 inches (51 mm).
       5. Face Sheet Profile:

\*\* NOTE TO SPECIFIER \*\* Select the exterior surface option required and delete the one not required.

* + - * 1. T-200-MR, Multi-Rib pattern with a non-repeating random stucco surface texture.
        2. T-200 2 inch, Ribbed pattern with a non-repeating random stucco surface texture.
      1. Exterior Aluminum: Pre-painted 0.025 inches (0.64 mm).
      2. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
      3. Interior Aluminum: Pre-painted 0.019 inches (0.48 mm).
      4. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
      5. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
      3. Thermal Value: R=18.28 ft2h F/Btu, (U=0.310 W/m2K).

\*\* NOTE TO SPECIFIER \*\* Select Windows or Full Vision Sections if required and delete if not required. from the following window options. Delete if not required.

* + - 1. Windows:

\*\* NOTE TO SPECIFIER \*\* Select the window option required and delete those not required.

* + - * 1. Type AA: Acrylic sealed 26 inches by 13 inches (660 mm by 330 mm).
        2. Type CPL: Sealed glass 24 inches by 8 inches (610 mm by 203 mm).
        3. Type D: Sealed glass 34 inches by 16 inches (864 mm by 406 mm).
        4. Type E: Sealed glass 24 inches by 12 inches (610 mm by 305 mm).
      1. Full Vision Sections: Type FV full vision aluminum glazing section.
         1. Color:

White.

* + - * 1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

1/8 inch (3 mm) acrylic.

1/8 inch (3 mm) polycarbonate.

1/8 inch (3 mm) plain glass.

1/8 inch (3 mm) tempered glass.

1/4 inch (6.3 mm) acrylic.

1/4 inch (6.3 mm) polycarbonate.

1/4 inch (6.3 mm) plain glass.

1/4 inch (6.3 mm) tempered glass.

1/2 inch (12.7 mm) sealed plain glass.

1/2 inch (12.7 mm) sealed tempered glass.

* + - 1. Exterior Colors:
         1. Manufacturer's standard White.
      2. Interior Colors:
         1. Manufacturer's standard White.
      3. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      4. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      5. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: 3 inch (76 mm) vinyl retained in aluminum extrusion.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Bottom seal: 4 inch (102 mm) vinyl retained in aluminum extrusion.
        2. Top seal: PVC/Vinyl type.
        3. Jamb seal: Dual fin vinyl/steel.
        4. Jamb seal: Dual fin vinyl/aluminum.
        5. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Thermatite Model T200-20 Insulated Steel Door sections are available in a maximum opening width of 38 feet 2 inches (11633 mm) and a maximum height of 22 feet (6706 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Thermatite Model T-200-20 2 inch.
       1. Door Assembly: Metal/foam/metal sandwich panel construction. Doors comply with:
          1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) ship-lap.
       4. Section Thickness: 2 inches (51 mm).
       5. Face Sheet Profile:
          1. T-200-20, Flush 20 gauge.
       6. Exterior Aluminum: Pre-painted 0.025 inches (0.64 mm).
       7. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
       8. Interior Aluminum: Pre-painted 0.019 inches (0.48 mm).
       9. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
       10. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
      3. Thermal Value: R=18.28 ft2h F/Btu,

\*\* NOTE TO SPECIFIER \*\* Select Windows or Full Vision Sections if required and delete if not required. from the following window options. Delete if not required.

* + - 1. Windows:

\*\* NOTE TO SPECIFIER \*\* Select the window option required and delete those not required.

* + - * 1. Type AA: Acrylic sealed 26 inches by 13 inches (660 mm by 330 mm).
        2. Type CPL: Sealed glass 24 inches by 8 inches (610 mm by 203 mm).
        3. Type D: Sealed glass 34 inches by 16 inches (864 mm by 406 mm).
        4. Type E: Sealed glass 24 inches by 12 inches (610 mm by 305 mm).
      1. Full Vision Sections: Type FV full vision aluminum glazing section.
         1. Color:

White.

* + - * 1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

1/8 inch (3 mm) acrylic.

1/8 inch (3 mm) polycarbonate.

1/8 inch (3 mm) plain glass.

1/8 inch (3 mm) tempered glass.

1/4 inch (6.3 mm) acrylic.

1/4 inch (6.3 mm) polycarbonate.

1/4 inch (6.3 mm) plain glass.

1/4 inch (6.3 mm) tempered glass.

1/2 inch (12.7 mm) sealed plain glass.

1/2 inch (12.7 mm) sealed tempered glass.

* + - 1. Exterior Colors:
         1. Manufacturer's standard White.
      2. Interior Colors:
         1. Manufacturer's standard White.
      3. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      4. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      5. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: 3 inch (76 mm) vinyl retained in aluminum extrusion.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Bottom seal: 4 inch (102 mm) vinyl retained in aluminum extrusion.
        2. Top seal: PVC/Vinyl type.
        3. Jamb seal: Dual fin vinyl/steel.
        4. Jamb seal: Dual fin vinyl/aluminum.
        5. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Thermatite Model T300-MR / T300-MR T-300 Insulated Steel Door sections are available in a maximum opening width of 38 feet 2 inches (11633 mm) and a maximum height of 22 feet (6706 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Model Thermatite T300-MR / T300-MR T-300.
       1. Door Assembly: Metal/foam/metal sandwich panel construction. Doors comply with:
          1. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section joints: 1/4 inch (6.3 mm) tongue and groove joint.
       4. Section Thickness: 3 inches (76.2 mm).
       5. Face Sheet Profile:

\*\* NOTE TO SPECIFIER \*\* Select the exterior surface option required and delete the one not required.

* + - * 1. T-300-MR, Multi-Rib pattern with a non-repeating random stucco surface texture, 0.016 inch (0.41 mm).
        2. T-300, Ribbed pattern with a non-repeating random stucco surface texture, 0.016 inch (0.41 mm).
      1. Exterior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      2. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
      3. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
      4. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
      5. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
      3. Thermal Value: R=24.54 ft2h F/Btu,

\*\* NOTE TO SPECIFIER \*\* Select Windows or Full Vision Sections if required and delete if not required. from the following window options. Delete if not required.

* + - 1. Windows:

\*\* NOTE TO SPECIFIER \*\* Select the window option required and delete those not required.

* + - * 1. Type AA: Acrylic sealed 26 inches by 13 inches (660 mm by 330 mm).
        2. Type CPL: Sealed glass 24 inches by 8 inches (610 mm by 203 mm).
        3. Type D: Sealed glass 34 inches by 16 inches (864 mm by 406 mm).
        4. Type E: Sealed glass 24 inches by 12 inches (610 mm by 305 mm).
      1. Full Vision Sections: Type FV full vision aluminum glazing section.
         1. Color:

White.

* + - * 1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

1/8 inch (3 mm) acrylic.

1/8 inch (3 mm) polycarbonate.

1/8 inch (3 mm) plain glass.

1/8 inch (3 mm) tempered glass.

1/4 inch (6.3 mm) acrylic.

1/4 inch (6.3 mm) polycarbonate.

1/4 inch (6.3 mm) plain glass.

1/4 inch (6.3 mm) tempered glass.

1/2 inch (12.7 mm) sealed plain glass.

1/2 inch (12.7 mm) sealed tempered glass.

* + - 1. Exterior Colors:
         1. Manufacturer's standard White.
      2. Interior Colors:
         1. Manufacturer's standard White.
      3. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      4. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      5. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: 3 inch (76 mm) vinyl retained in aluminum extrusion.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Bottom seal: 4 inch (102 mm) vinyl retained in aluminum extrusion.
        2. Top seal: PVC/Vinyl type.
        3. Jamb seal: Dual fin vinyl/steel.
        4. Jamb seal: Dual fin vinyl/aluminum.
        5. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.
  1. ALUMINUM SECTIONAL OVERHEAD DOORS

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Alumatite Model 150 Door sections are available in maximum widths of 16 feet 2 inches (4928 mm) and maximum height of 16 feet 2 inches (4928 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Alumatite Model A150.
       1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm) diameter bolts.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section joints: 1/4 inch (6.3 mm) ship-lap.
       4. Section Thickness: 1-1/2 inches (38.1 mm).
       5. Stiles and Rails: 6063 - T6 aluminum alloy extrusions.
       6. Center Stiles: 2 inch (51 mm) wide.
       7. End Stiles: 3-3/8 inches (86 mm) wide for single end roller brackets; 6-3/8 inches (162 mm) for double end roller brackets.
       8. Top and Bottom Rail: 3-3/8 inches (86 mm) wide.
       9. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Paneled Sections:

\*\* NOTE TO SPECIFIER \*\* Select from the following paneling options. Delete options not required.

* + - * 1. Aluminum Panels: 0.051 inch (1.3 mm) thick embossed aluminum sheets.
        2. Thermalite Insulated Kick Panels: 1/2 inch (12.7 mm) thick insulation covered on both sides with 20 gauge (1 mm) embossed steel sheets.
        3. Thermalite Insulated Kick Panels: 1/2 inch (12.7 mm) thick insulation covered on both sides with 0.032 inch (0.8 mm) embossed aluminum sheets.
        4. Thermalite Plywood Kick Panels: 3/8 inch (9.5 mm) thick plywood covered on both sides with 20 gauge (1 mm) embossed steel sheets.
        5. Thermalite Plywood Kick Panels: 3/8 inch (9.5 mm) thick plywood covered on both sides with 0.032 inch (0.8 mm) embossed aluminum sheets.
      1. Glazing Sections:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

* + - * 1. 1/8 inch (3 mm) Acrylic glazing.
        2. 1/8 inch (3 mm) Polycarbonate glazing.
        3. 1/8 inch (3 mm) Plain Glass.
        4. 1/8 inch (3 mm) Tempered Glass.
        5. 1/2 inch (12.7 mm) Tempered Sealed Insulating Glass.
        6. 1/2 inch (12.7 mm) Plain Sealed Insulating Glass.
      1. Finish and Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following finish paragraphs and delete those not required. Custom anodized colors are also available.

* + - * 1. Finish: Manufacturer's standard White.
        2. Finish: Clear anodizing to AA Spec A-21.
        3. Finish: Mill Finish.
      1. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      2. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      3. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous replaceable dual seals between sections.
         2. Standard bottom seal: Vinyl bulb shaped astragal retained in bottom rail of the bottom section.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Top seal: PVC/Vinyl type.
        2. Jamb seal: Dual fin vinyl/aluminum.
        3. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Alumatite Model 150T Door sections are available in maximum widths of 16 feet 2 inches (4928 mm) and maximum height of 16 feet 2 inches (4928 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Alumatite Model A150T.
       1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm) diameter bolts for the upper sections and metal/foam/metal Thermatite sandwich bottom panel construction.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) ship-lap.
       4. Section Thickness: 1-1/2 inches (38.1 mm).
       5. Center Stiles: 2 inch (51 mm) wide.
       6. End Stiles: 3-3/8 inches (86 mm) wide for single end roller brackets; 6-3/8 inches (162 mm) for double end roller brackets.
       7. Top and Bottom Rail: 3-3/8 inches (86 mm) wide.
       8. Stiles and Rails: 6063 - T6 aluminum alloy extrusions.
       9. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Bottom Section: T150MR (Multi-rib).
         1. Panel Thickness: 1-1/2 inches (38.1 mm).
         2. Exterior Surface: Multi-Rib pattern with a non-repeating random stucco surface texture.
         3. Exterior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
         4. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
         5. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
         6. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
         7. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
         8. Thermal Value: R=13.21 ft2h F/Btu.
         9. Seals: Continuous dual seal between sections.
      3. Paneling:

\*\* NOTE TO SPECIFIER \*\* Select from the following paneling options. Delete options not required.

* + - * 1. Aluminum Panels: 0.051 inch (1.3 mm) thick embossed aluminum sheets.
        2. Steel Panels: Two 20 gauge (1 mm) embossed steel sheets.
      1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

* + - * 1. 1/8 inch (3 mm) Acrylic glazing.
        2. 1/8 inch (3 mm) Polycarbonate glazing.
        3. 1/8 inch (3 mm) Plain Glass.
        4. 1/8 inch (3 mm) Tempered Glass.
        5. 1/2 inch (12.7 mm) Tempered Sealed Insulating Glass.
        6. 1/2 inch (12.7 mm) Plain Sealed Insulating Glass.
      1. Finish and Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following finish paragraphs and delete one not required.

* + - * 1. Finish: Manufacturer's standard White.
        2. Finish: Clear anodizing to AA Spec A-21.
        3. Finish: Mill finish.
      1. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      2. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      3. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous replaceable dual seals between sections.
         2. Standard bottom seal: Vinyl bulb shaped astragal retained in bottom rail of the bottom section.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Top seal: PVC/Vinyl type.
        2. Jamb seal: Dual fin vinyl/aluminum.
        3. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Alumatite Model 175 Door sections are available in maximum widths of 16 feet 2 inches (4928 mm) and maximum height of 16 feet 2 inches (4928 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Alumatite Model A175.
       1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm) diameter bolts.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section joints: 1/4 inch (6.3 mm) ship-lap.
       4. Section Thickness: 1-3/4 inches (44 mm).
       5. Center Stiles: 2 inch (51 mm) wide.
       6. End Stiles: 3-3/8 inches (86 mm) wide for single end roller brackets. Doors width 16 fee 3 inches (4953 mm) and over shall all have double 5-7/8 inches (162 mm) wide end stiles.
       7. Top Rail:

\*\* NOTE TO SPECIFIER \*\* Select one of the following top rail size paragraphs and delete the one not required.

* + - * 1. 3-3/8 inches (86 mm) wide.
        2. 6-3/8 inches (162 mm) wide.
      1. Bottom Rail:

\*\* NOTE TO SPECIFIER \*\* Select one of the following bottom rail size paragraphs and delete the one not required.

* + - * 1. 3-3/8 inches (86 mm) wide.
        2. 6-3/8 inches (162 mm) wide.
      1. Stiles and Rails: 6063 - T6 aluminum alloy extrusions.
      2. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Paneling:

\*\* NOTE TO SPECIFIER \*\* Select from the following paneling options. Delete options not required.

* + - * 1. Aluminum Panels: 0.051 inch (1.3 mm) thick embossed aluminum sheets.
        2. Steel Panels: Two 20 gauge (1 mm) embossed steel sheets.
        3. Insulated Kick Panels: 1/2 inch (12.7 mm) thick insulation covered on both sides with 20 gauge (1 mm) embossed steel sheets.
        4. Insulated Kick Panels: 1/2 inch (12.7 mm) thick insulation covered on both sides with 0.032 inch (0.8 mm) embossed aluminum sheets.
        5. Plywood Kick Panels: 3/8 inch (9.5 mm) thick plywood covered on both sides with 20 gauge (1 mm) embossed steel sheets.
        6. Plywood Kick Panels: 3/8 inch (9.5 mm) thick plywood covered on both sides with 0.032 inch (0.8 mm) embossed aluminum sheets.
      1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

* + - * 1. 1/8 inch (3 mm) Acrylic glazing.
        2. 1/4 inch (6 mm) Acrylic glazing.
        3. 1/8 inch (3 mm) Polycarbonate glazing.
        4. 1/4 inch (6 mm) Polycarbonate glazing.
        5. 1/8 inch (3 mm) plain glass.
        6. 1/4 inch (6 mm) plain glass.
        7. 1/8 inch (3 mm) tempered glass.
        8. 1/4 inch (6 mm) tempered Glass.
        9. 1/2 inch (12.7 mm) Tempered Sealed Insulating Glass.
        10. 1/2 inch (12.7 mm) Plain Sealed Insulating Glass.
      1. Finish and Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following finish paragraphs and delete those not required.

* + - * 1. Finish: Clear anodized.
        2. Finish: Manufacturer's standard White.
        3. Finish: Mill finish.
      1. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      2. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      3. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: Vinyl bulb shaped astragal retained in bottom rail of the bottom section.
         3. Top seal: PVC/Vinyl type.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Jamb seal: Dual fin vinyl/aluminum.
        2. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Alumatite Model 175T Door sections are available in maximum widths of 16 feet 2 inches (4928 mm) and maximum height of 16 feet 2 inches (4928 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Alumatite Model A175T.
       1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm) diameter bolts and metal/foam/metal sandwich bottom panel construction.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Joints: 1/4 inch (6.3 mm) ship-lap.
       4. Section Thickness: 1-3/4 inches (44 mm).
       5. Center Stiles: 2 inch (51 mm) wide.
       6. End Stiles: 3-3/8 inches (86 mm) wide for single end roller brackets; 6-3/8 inches (162 mm) for double end roller brackets.
       7. Top and Bottom Rail: 3-3/8 inches (86 mm) wide.
       8. Stiles and Rails: 6063 - T6 aluminum alloy extrusions.
       9. Bottom Section: T175MR (Multi-rib).
          1. Exterior Surface: Multi-Rib pattern with a non-repeating random stucco surface texture.
          2. Exterior Steel: Pre-painted 0.0196 inches (0.481 mm), hot-dipped galvanized.
          3. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
          4. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
          5. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
          6. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
          7. Thermal Value: R=16.00 ft2h F/Btu.
          8. Seals: Continuous dual seal between sections.
          9. Color:

\*\* NOTE TO SPECIFIER \*\* Select from the following color options for insulated bottom sections delete option not used.

Manufacturer's standard White.

Manufacturer's standard Silver.

Manufacturer's standard Brown.

* + - 1. Upper Sections: A175.
      2. Center Stiles: 2 inch (51 mm) wide.

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete the one not required.

* + - 1. End Stiles:
         1. 3-3/8 inches (85.7 mm) wide.
         2. 6-3/8 inches (162 mm) wide.
      2. Top Rail:

\*\* NOTE TO SPECIFIER \*\* Select one of the following top rail size paragraphs and delete the one not required.

* + - * 1. 3-3/8 inches (85.7 mm) wide.
        2. 6-3/8 inches (162 mm) wide.
      1. Stiles and Rails: 6063 - T6 aluminum alloy extrusions.
      2. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Paneling:

\*\* NOTE TO SPECIFIER \*\* Select from the following paneling options. Delete options not required.

* + - * 1. Aluminum Panels: 0.051 inch (1.3 mm) thick embossed aluminum sheets.
        2. Steel Panels: Two 20 gauge (1 mm) embossed steel sheets.
      1. Glazing:

\*\* NOTE TO SPECIFIER \*\* Select from the following glazing options. Delete if not required.

* + - * 1. 1/8 inch (3 mm) Acrylic glazing.
        2. 1/4 inch (6 mm) Acrylic glazing.
        3. 1/8 inch (3 mm) Polycarbonate glazing.
        4. 1/4 inch (6 mm) Polycarbonate glazing.
        5. 1/8 inch (3 mm) Plain Glass.
        6. 1/4 inch (6 mm) Plain Glass.
        7. 1/8 inch (3 mm) Tempered Glass.
        8. 1/4 inch (6 mm) Tempered Glass.
        9. 1/2 inch (12.7 mm) Tempered Sealed Insulating Glass.
        10. 1/2 inch (12.7 mm) Plain Sealed Insulating Glass.
      1. Finish and Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following finish paragraphs and delete those not required.

* + - * 1. Finish: Clear anodized.
        2. Finish: Manufacturer's standard White.
        3. Finish: Mill finish.
      1. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      2. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      3. Lock:
         1. Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required and delete if not required.

* + - * 1. Optional keyed lock.
      1. Seals:
         1. Standard continuous, replaceable dual seals between sections.
         2. Standard bottom seal: Vinyl bulb shaped astragal retained in bottom rail of the bottom section.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Top seal: PVC/Vinyl type.
        2. Jamb seal: Dual fin vinyl/aluminum.
        3. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.

\*\* NOTE TO SPECIFIER \*\* Richards-Wilcox Canada Alumatite Model P175 Door sections are available in maximum widths of 16 feet 2 inches (4928 mm) and maximum height of 16 feet 2 inches (4928 mm). Units shall have the following characteristics:

* + 1. Richards-Wilcox Canada Polytite Model P175.
       1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm) diameter bolts.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section Thickness: 1-3/4 inches (45 mm) deep.
       4. Section joints: 1/4 inch (6.3 mm) ship-lap.
       5. Center Stiles: 3 inch (76 mm) wide visible inside.
       6. End Stiles:
          1. 2-1/2 inches (64 mm) wide.
       7. Top Rail:
          1. 2-3/16 inches (56 mm) wide.
       8. Bottom Rail:
          1. 2-9/16 inches (65 mm) wide.
       9. Pair of meeting rails:
          1. 4-1/2 inches (114 mm) wide.
       10. Stiles and Rails: 6063 - T6 aluminum alloy extrusions.
       11. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Paneling:

\*\* NOTE TO SPECIFIER \*\* Select from the following paneling options. Delete options not required.

* + - 1. Paneling 5/8 inch (16 mm) thick, triple-wall extruded polycarbonate clear panels, R= 2.5 ft2hF/Btu, light transmission 74 percent, SHGC= 75 retained with polyethylene gaskets.
      2. UV Protection: The exterior side of the polycarbonate is protected with a coextruded layer warranting resistance to atmospheric agents and U.V. rays.
      3. Fire Reaction: ASTM E 84 Flame spread and smoke developed: Class A.
      4. Panel Colors:

\*\* NOTE TO SPECIFIER \*\* Select from the following colors options. Clear, Dark Bronze and Western Bronze are standard. Delete if not required.

* + - * 1. Clear.
        2. Clear (orange peel).
        3. Dark Bronze.
        4. Dark (Orange peel)
        5. Western Bronze.
        6. Blue.
        7. Green.
        8. White (Opal).
      1. Stile and Rail Finish and Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following finish paragraphs and delete those not required.

* + - * 1. Finish: Clear anodized.
        2. Finish: Manufacturer's standard White.
        3. Finish: Bronze painted finish.
      1. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      2. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      3. Lock:

\*\* NOTE TO SPECIFIER \*\* Include the following optional interior slide lock if required and delete if not required.

* + - * 1. Interior mounted slide lock.
      1. Seals:
         1. Standard continuous, replaceable seals between sections.
         2. Standard bottom seal: Vinyl bulb shaped astragal retained in bottom rail of the bottom section.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Jamb/lintel seal: Dual fin vinyl/aluminum.
        2. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.
    1. Richards-Wilcox Canada Alumatite Door Model: P175T.
       1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm) diameter bolts and metal/foam/metal sandwich bottom panel construction.
       2. Size: See Drawings. Door is to be 1 inch (25 mm) higher than finished door opening and extend 1 inch (25 mm) beyond jamb on either side of finished door opening width.
       3. Section joints: 1/4 inch (6.3 mm) ship-lap.
       4. Bottom Section: T175MR (Multi-rib).
          1. Section Thickness: 1-3/4 inches (44.45 mm).
          2. Exterior Surface: Multi-Rib pattern with a non-repeating random stucco surface texture.
          3. Exterior Steel: Pre-painted 0.019 inches (0.48 mm), hot-dipped galvanized.
          4. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.
          5. Interior Steel: Pre-painted 0.016 inches (0.41 mm), hot-dipped galvanized.
          6. End Stiles: End Caps: 16 gauge (1.6 mm) hot dipped galvanized steel.
          7. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.
          8. Thermal Value: R=16.004 ft2h F/Btu,
          9. Seals: Continuous dual seal between sections.
          10. Color:

\*\* NOTE TO SPECIFIER \*\* Select from the following color options for insulated bottom sections delete option not used.

Manufacturer's standard White.

Manufacturer's standard Silver.

Manufacturer's standard Brown.

* + - 1. Upper Sections: P175.
      2. Center Stiles: 3 inch (76 mm) wide visible inside.
      3. End Stiles:
         1. 2-1/2 inches (64 mm) wide.
      4. Top Rail:
         1. 2-3/16 inches (56 mm) wide.
      5. Bottom Rail:
         1. 2-9/16 inches (65 mm) wide.
      6. Pair of meeting rails:
         1. 4-1/2 inches (114 mm) wide.
      7. Stiles and Rails: 6063 - T6 aluminum alloy extrusions.
      8. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if required and delete if not required.

* + - 1. High-Usage Package: Provide with optional high-usage package.
      2. Paneling:

\*\* NOTE TO SPECIFIER \*\* Select from the following paneling options. Delete options not required.

* + - 1. Paneling 5/8 inch (16 mm) thick, triple-wall extruded polycarbonate clear panels, R= 2.5 ft2hF/Btu, light transmission 74 percent, SHGC= 75 retained with polyethylene gaskets.
      2. UV Protection: The exterior side of the polycarbonate is protected with a coextruded layer warranting resistance to atmospheric agents and U.V. rays.
      3. Fire Reaction: ASTM E 84 Flame spread and smoke developed: Class A.
      4. Paneling: Stock colors:

\*\* NOTE TO SPECIFIER \*\* Select from the following color options. Clear, Dark Bronze and Western Bronze are standard. Delete those not required.

* + - * 1. Clear.
        2. Clear (Orange peel)
        3. Dark Bronze.
        4. Dark Brown (Orange peel)
        5. Western Bronze.
        6. Blue.
        7. Green.
        8. White.
      1. Stiles and Rails Finish and Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following finish paragraphs and delete those not required.

* + - * 1. Finish: Clear anodized.
        2. Finish: Manufacturer's standard White.
        3. Finish: Bronze painted finish.
      1. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      2. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      3. Lock:

\*\* NOTE TO SPECIFIER \*\* Include the following optional interior slide lock if required and delete if not required.

* + - * 1. Interior mounted slide lock.
      1. Seals:
         1. Standard continuous, replaceable seals between sections.
         2. Standard bottom seal: Vinyl bulb shaped astragal retained in bottom rail of the bottom section.

\*\* NOTE TO SPECIFIER \*\* Select from the following seal options. Delete options not required.

* + - * 1. Jamb/lintel seal: Dual fin vinyl/aluminum.
        2. Jamb seal: ADCA mount vinyl.
      1. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
      2. Operation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following operation paragraphs and delete the one not required.

* + - * 1. Manual.
        2. Electric.
  1. HARDWARE
     1. Counter-balance System:
        1. Spring assembly: Oil tempered torsion springs:

\*\* NOTE TO SPECIFIER \*\* Select from the following torsion spring assemblies. 10,000 cycles is standard and the others are high use door cycle options. Delete options not required. Note that 25,000, 50,000, 75,000, and 100,000 cycle springs are not available with tubular shaft.

* + - * 1. Minimum 10,000 cycles.
        2. Minimum 25,000 cycles.
        3. Minimum 50,000 cycles.
        4. Minimum 75,000 cycles.
        5. Minimum 100,000 cycles
      1. Spring: Sized to suit the cycles.
      2. Shaft:

\*\* NOTE TO SPECIFIER \*\* Select from the following shaft options. High use cycle doors and springs are only available with a solid shaft. Delete options not required.

* + - * 1. 1 inch (25 mm) 14 gauge mill or galvanized tube, recommended for doors up to 450 lbs (205 kg)
        2. 1 inch (25 mm) 1/8 inch (3 mm) galvanized tube with full length keyway, recommended for doors up to 675 lbs (305 kg).
        3. 1 inch (25 mm) solid CRS shaft with full length keyway, recommended for doors up to 1000 lbs (450 kg).
        4. 1-1/4 inch (32 mm) solid CRS shaft with full-length keyway, recommended for doors over 1000 lbs (450 kg).
      1. Wire Rope: Aircraft type 7x19 construction with a safety factor of 5:1 minimum.
    1. Hardware: Include all the required hardware and zinc plated fasteners.
       1. Hinges: Linear style 12 gauge (2.75 mm) galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Select from the following track options. Delete options not used.

* + - 1. Track 2 inches (50 mm): Rolled formed from 2 inch (50 mm) 14 gauge (2.0 mm) galvanized steel.
         1. Mount:

\*\* NOTE TO SPECIFIER \*\* Select from the following three mount options. Delete options not used. Not available for CE or EU doors.

ADCA Mount: Continuous adjustable track angle ADCA. Bolted type, field adjustable to ensure weather tight seal, fabricated from 14 gauge (2.0 mm) commercially galvanized steel, designed to provide continuous track support for full opening height.

Clip Angle Mount: Pre-punched angle and clips designed for field bolting, adjustable to ensure weather tight seal and serviceability, the angles are fabricated from 0.093 inch (2.4 mm) commercially galvanized steel.

Bracket Mount: Track brackets. Bolted type field adjustable to ensure weather tight seal, rib reinforced, stamped from 0.123 inch (3.1 mm) thick commercially galvanized steel.

* + - * 1. Horizontal Track Curve:

\*\* NOTE TO SPECIFIER \*\* Select one of the following track curve options. Delete option not used.

12 inch (305 mm).

16 inch (406 mm).

* + - * 1. Rollers:

2 inch (50 mm) white nylon race, with 10 ball bearings and zinc plated stem.

* + - * 1. Roller Brackets: Fabricated from 14 gauge (2.0 mm) thick commercially galvanized steel. Graduated type design to suit the slope in the vertical track to ensure weather tight seal.
      1. Track 3 inches (75 mm): Rolled formed from 3 inch (75 mm) 12 gauge (2.7 mm) galvanized steel.
         1. Mount:

\*\* NOTE TO SPECIFIER \*\* Select from the following mount three options. Delete options not used. Not available for CE or EU doors.

ADCA Mount: Continuous adjustable track angle ADCA. Bolted type, field adjustable to ensure weather tight seal, fabricated from 13 gauge (2.4 mm) commercially galvanized steel, designed to provide continuous track support for full opening height.

Clip Angle Mount: Pre-punched angle and clips designed for field bolting, adjustable to ensure weather tight seal and serviceability, the angles are fabricated from 0.093 inch (2.4 mm) commercially galvanized steel.

Bracket Mount: Track brackets. Bolted type field adjustable to ensure weather tight seal, rib reinforced, stamped from 0.123 inch (3.1 mm) thick commercially galvanized steel.

* + - * 1. Track Hangers: Perforated type 1-1/4 inches by 1-1/4 inches (32 mm by 32 mm) angles, roll formed from 14 gauge (2.0 mm) thick commercially galvanized steel.
        2. Horizontal Track Curve: 16 inch (406 mm) radius.
        3. Rollers:

\*\* NOTE TO SPECIFIER \*\* Select one of the following roller options. Delete option not used.

Hardened steel outer race, 2-7/8 inch (73 mm) diameter, with ten 5/16 inch (8 mm) ball bearings, and 7/16 inch (11 mm) diameter roller axels.

UHMW outer race, 2-7/8 inch (73 mm) diameter, with ten 5/16 inch (8 mm) ball bearings, and 7/16 inch (11 mm) diameter roller axels.

* + - * 1. Roller Brackets: Fabricated from commercially galvanized steel. Graduated type design to suit the slope in the vertical track to ensure weather tight seal. Thickness as follows:

\*\* NOTE TO SPECIFIER \*\* Select one of the following thickness options. Delete options not used.

11 gauge (3.1 mm).

13 gauge (2.3 mm).

14 gauge (2.4 mm).

* + - 1. Horizontal angle: Full length.
      2. Locking:

\*\* NOTE TO SPECIFIER \*\* Select from the following locking options. Delete option not used.

* + - * 1. Interior slide bolt.
        2. Optional keyed lock.

\*\* NOTE TO SPECIFIER \*\* Select from the following hardware options. Delete options not used.

* + - 1. Pusher springs. For all standard lift doors with manual chain hoist or jackshaft electric operators.
      2. Bumper leaf springs: For high lift and vertical lift door applications.
      3. Across-the-door bar latch: Complete with night lock with an outside cylinder and handle for manually operated doors only.
      4. Across-the-door-bar latch inside only: Complete with night lock and interior handle. Electric interlock is required on electrically operated doors.

\*\* NOTE TO SPECIFIER \*\* The following is recommended on all doors wider than 16 feet 2 inches (4930 mm). Delete if not required.

* + - 1. Double end roller brackets and long stem rollers.

\*\* NOTE TO SPECIFIER \*\* The following is recommended on all manual operated doors over 144 square feet (13.4 square meters) in area. Delete if not required.

* + - 1. Chain hoist: Chain and sprocket type design, 3:1 reduction.
      2. Double radius low headroom track: Minimum clearance required, 5 inches (127 mm) for 2 inch (50 mm) hardware and 7-1/2 inches (190 mm) for 3 inch (hardware).
      3. Follow the roof pitch: Install the track to follow roof pitch for standard lift and high lift doors.
      4. Track guards. Formed from 3/16 inch (4.8 mm) minimum steel, 60 inches (1520 mm high).

\*\* NOTE TO SPECIFIER \*\* The following is recommended for all manually operated doors.

* + - 1. Pull chain with spring.

\*\* NOTE TO SPECIFIER \*\* Select from the following if required for the project. Delete if not required.

* + - 1. Exhaust port:
         1. 3 inch (76 mm).
         2. 4 inch (102 mm).

\*\* NOTE TO SPECIFIER \*\* Both DC and AC operators are available. Select the Operator/Control system required from the following paragraphs. Delete those not required.

* 1. ELECTRIC OPERATORS AND CONTROLS
     1. Dyna-Hoist DC1000 Direct Drive: DC electric motor is directly coupled to a hollow shaft (30:1 reduction) worm gear reducer designed to install over keyed door shaft.
        1. Motor: Continuous duty 1 HP, 90 V DC, 1750 rpm motor.
        2. Operator: Suitable for 110 to 240 V, 1 PH, and 60 Hz power supply and shall have integral absolute encoder to control the door travel.
        3. Controls: Programmable wall mountable UL325 compliant NEMA 4X control panel with LCD display and OPEN-CLOSE-STOP buttons on cover, 24V DC control voltage, containing the back-up battery pack to operate the door in case of power failure, logic circuit board. Pulse with modulation programming to provide soft-start soft-stop, dynamic brake and speed control. Cycle counter, dual upper limit for partial opening, time delay on reverse and programmable close timer, terminal blocks for external activating and reversing devices. Includes the following:
           1. Photo Cell: NEMA 4 photo cell for mounting across the opening wired to reverse the door closing in case it detects an obstruction.
           2. Safety Edge: (Optional) Wireless, Featheredge on the leading edge of the bottom section wired to reverse the door closing in case it detects an obstruction.

\*\* NOTE TO SPECIFIER \*\* The following remote location paragraph is optional. Delete if not required.

* + - * 1. Remote push button station: NEMA 4, three buttons OPEN-CLOSE-STOP bush button station for remote location.
      1. Maximum Recommended Counter balance Sectional Door size: 600 square feet.
    1. Dyna-Hoist DC750 Direct Drive: DC electric motor directly coupled to a hollow shaft (30:1 reduction) worm gear reducer designed to install over keyed door shaft.
       1. Motor: Continuous duty 0.75 HP, 90 V DC, 1750 rpm motor.
       2. Operator: Suitable for 110 to 240 V, 1 PH, and 60 Hz power supply and shall have integral absolute encoder to control the door travel.
       3. Controls: Programmable wall mountable UL325 compliant NEMA 4X control panel with LCD display and OPEN-CLOSE-STOP buttons on cover, 24V DC control voltage, containing the back-up battery pack to operate the door in case of power failure, logic circuit board. Pulse with modulation programming to provide soft-start soft-stop, dynamic brake and speed control. Cycle counter, dual upper limit for partial opening, time delay on reverse and programmable close timer, terminal blocks for external activating and reversing devices. Includes the following:
          1. Photo Cell: NEMA 4 photo cell for mounting across the opening wired to reverse the door closing in case it detects an obstruction.
          2. Safety Edge: (Optional) Wireless, Featheredge on the leading edge of the bottom section wired to reverse the door closing in case it detects an obstruction.

\*\* NOTE TO SPECIFIER \*\* The following remote location paragraph is optional. Delete if not required.

* + - * 1. Remote push button station: NEMA 4, three buttons OPEN-CLOSE-STOP bush button station for remote location.
      1. Maximum Recommended Counter balance Sectional Door size: 400 square feet.
    1. Dyna-Hoist DC500 Direct Drive: DC electric motor directly coupled to a hollow shaft (30:1 reduction) worm gear reducer designed to install over keyed door shaft.
       1. Motor: Continuous duty 0. 5 HP, 90 V DC, 1750 rpm motor.
       2. Operator: Suitable for 110 to 240 V, 1 PH, and 60 Hz power supply and shall have integral absolute encoder to control the door travel.
       3. Controls: Programmable wall mountable UL325 compliant NEMA 4X control panel with LCD display and OPEN-CLOSE-STOP buttons on cover, 24V DC control voltage, containing the back-up battery pack to operate the door in case of power failure, logic circuit board. Pulse with modulation programming to provide soft-start soft-stop, dynamic brake and speed control. Cycle counter, dual upper limit for partial opening, time delay on reverse and programmable close timer, terminal blocks for external activating and reversing devices. Includes the following:
          1. Photo Cell: NEMA 4 photo cell for mounting across the opening wired to reverse the door closing in case it detects an obstruction.
          2. Safety Edge: (Optional) Wireless, Featheredge on the leading edge of the bottom section wired to reverse the door closing in case it detects an obstruction.

\*\* NOTE TO SPECIFIER \*\* The following remote location paragraph is optional. Delete if not required.

* + - * 1. Remote push button station: NEMA 4, three buttons OPEN-CLOSE-STOP bush button station for remote location.
      1. Maximum Recommended Counter balance Sectional Door size: 200 square feet.
    1. AC Jack Shaft Hoist: Provide jack shaft type electric operators, for the doors indicated on the Drawings, to operate the doors at approximate speed of 8 inch (200 mm) per second.

\*\* NOTE TO SPECIFIER \*\* Select the Hoist Type required from the following two paragraphs and delete those not required.

* + - 1. Standard Lift Doors: Dyna-Hoist" heavy commercial duty, logic control type operator with on board radio receiver, model "Dyna-Hoist MO-OPH" to NEMA 1, shall be equipped with an adjustable friction clutch, time delay on reverse, mechanical brake, integral enclosure containing the controls, floor level disconnect, self engaging chain hoist with electrical cut-off for manual emergency operation, continuous duty motor \_\_ HP minimum, suitable for \_\_\_ volts, \_ Ph, 60 Hz power supply.
      2. Standard High Lift and Full Vertical Lift Doors: Dyna-Hoist" heavy industrial duty, logic control type operator with on board radio receiver, model "Dyna-Hoist MO-OSH" to NEMA 1, shall be equipped with an adjustable friction clutch, cast iron flanged bearings on input and output shafts, time delay on reverse, solenoid brake, integral enclosure containing the controls, floor level disconnect, chain hoist with electrical cut-off for manual emergency operation, continuous duty motor \_\_ HP minimum, suitable for \_\_\_ volts, \_ Ph, 60 Hz power supply
      3. Standard Controls:
         1. Provide one push button station "OPEN/CLOSE/STOP" to NEMA 1, for inside wall mounting near the door jamb on the operator side.
         2. Provide and install a "Featheredge" Reversing Safety Edge along the bottom edge of door to reverse on contact with an object as supplied by Service Door Industries. Hose type pneumatic safety edges will not be accepted. Power to the safety edge shall be supplied through reelite.
  1. FABRICATION
     1. Fabricate the doors to dimensions detailed on reviewed shop drawings, free from distortion and defects detrimental to the appearance and performance.
     2. Ensure that site dimensions are taken and confirmed prior to the fabrication of the doors, frames and other components.
     3. Accurately fit joints and intersecting members with adequate fastenings.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until openings have been properly prepared.
      2. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
      3. Verify electric power is available and of correct characteristics.
      4. If preparation is the responsibility of another installer, notify Architect 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.
      2. Install doors, tracks and operating equipment complete with necessary hardware, weather-stripping, anchors, hangers, brackets and accessories, in accordance to manufacturer's printed instructions.
      3. Assemble and erect work plumb, true, square, straight, level and accurate as per Drawings and reviewed shop drawings.
      4. Isolate metals where necessary to prevent corrosion due to contact with dissimilar metals and between metals, masonry and concrete. Use bituminous paint or butyl tape or as recommended, in writing, by the door manufacturer.
   4. ADJUSTMENT AND DEMONSTRATION
      1. Lubrication: Upon completion of erection of units and operating equipment, lubricate moving parts before operation. Grease sprockets, bearings, cables, link chains and guides. Use lubricant as recommended by the manufacturer.
      2. Demonstration: Test-operate and adjust doors to perform smoothly, free from warp, twist or distortion. Demonstrate the operation to the satisfaction of the Architect at the same time of acceptance of the completed work.
   5. PROTECTION
      1. Do not permit construction traffic through overhead door openings after adjustment and cleaning.
      2. Protect installed products until completion of project.
      3. Touch-up damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION