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 2S5  
Tel: 905-625-0037  
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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. American National Standards Institute (ANSI):
       1. ANSI/DASMA 102 - Specifications for Sectional Overhead Type Doors.
       2. ANSI/DASMA 105 - Test Method for Thermal Transmittance and Air Infiltration of Garage Doors.
       3. ANSI/DASMA 108 - Standard Method for Testing Sectional Garage Doors, Rolling Doors, and Flexible Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference.
       4. ANSI/DASMA 115 - Standard Method for Testing Sectional Doors, Rolling Doors, and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure.
    2. ASTM International (ASTM):
       1. ASTM A123 - Standard Specification for Zinc (hot-dipped galvanized) coatings on iron and steel products.
       2. ASTM A229 - Steel wire, oil-tempered for mechanical springs.
       3. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
       4. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
       5. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
       6. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
       7. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.
       8. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
       9. ASTM E330 - Structural performance of exterior windows, curtain walls, and doors by uniform static air pressure difference.
       10. ASTM E413 - Classification for Rating Sound Insulation V62221
    3. Food and Drug Administration USA (FDA):
       1. FDA 21 CFR 177.1520 - Olefin polymers
    4. Underwriters Laboratories (UL):
       1. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

\*\* NOTE TO SPECIFIER \*\* Delete article if performance requirements are listed with the product.

* 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.
  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 a minimum of five years documented experience.
     2. Installer Qualifications: Authorized representative of the manufacturer with a minimum of five years documented experience.
        1. Installation shall be only by the specified manufacturer or an authorized representative for the region.
     3. 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.
     4. 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.
  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 2S5  
         Tel: 905-625-0037  
         Fax: 905-625-0057  
         Email:  [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 the provisions of Section 01 60 00.
  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) shiplap 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: 3.21 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.

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

* + - * 1. Color: White.
        2. Color: Mill finish.

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

* + - * 1. Glazing: 1/8 inch (3 mm) acrylic.
        2. Glazing: 1/8 inch (3 mm) polycarbonate.
        3. Glazing: 1/8 inch (3 mm) plain glass.
        4. Glazing: 1/8 inch (3 mm) tempered glass.
        5. Glazing: 1/2 inch (12.7 mm) sealed plain glass.
        6. Glazing: 1/2 inch (12.7 mm) sealed tempered glass.

\*\* NOTE TO SPECIFIER \*\* Delete the colors option not required.

* + - 1. Colors:

\*\* NOTE TO SPECIFIER \*\* Delete exterior option 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: Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* The following paragraph is optional. Delete Keyed lock if not required.

* + - * 1. 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 as recommended by manufacturer to suit loading required and clearances available.

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

* + - 1. Operation: Manual.
      2. Operation: 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) shiplap, with thermal break.
       4. Section Thickness: 1.75 inches (45 mm).

\*\* NOTE TO SPECIFIER \*\* Delete the face sheet profile option not required.

* + - 1. Face Sheet Profile: T-175MR, Multi-Rib pattern with a non-repeating random stucco surface texture.
      2. Face Sheet Profile: T175 1-3/4 inch, Ribbed 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. Standard Springs: 10,000 cycles.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph 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 \*\* Delete Windows or Full Vision Sections whichever is not required. Delete both if neither are 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.

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

* + - * 1. Color: White.
        2. Color: Mill finish.
        3. Color: Clear anodized.

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

* + - * 1. Glazing: 1/8 inch (3 mm) acrylic.
        2. Glazing: 1/8 inch (3 mm) polycarbonate.
        3. Glazing: 1/8 inch (3 mm) plain glass.
        4. Glazing: 1/8 inch (3 mm) tempered glass.
        5. Glazing: 1/4 inch (6.3 mm) acrylic.
        6. Glazing: 1/4 inch (6.3 mm) polycarbonate.
        7. Glazing: 1/4 inch (6.3 mm) plain glass.
        8. Glazing: 1/4 inch (6.3 mm) tempered glass.
        9. Glazing: 1/2 inch (12.7 mm) sealed plain glass.
        10. Glazing: 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: Exterior, Manufacturer's standard White.
      2. Colors: Exterior, Manufacturer's standard Brown.
      3. Colors: Interior, Manufacturer's standard White.
      4. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      5. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      6. Lock:
         1. Interior mounted slide lock.

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

* + - * 1. 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 as recommended by manufacturer to suit loading required and clearances available.

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

* + - 1. Operation: Manual.
      2. Operation: 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) shiplap.
       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 non-repeating random stucco surface texture.
        2. T-200 2 inch, Ribbed pattern with 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.

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

* + - * 1. Glazing: 1/8 inch (3 mm) acrylic.
        2. Glazing: 1/8 inch (3 mm) polycarbonate.
        3. Glazing: 1/8 inch (3 mm) plain glass.
        4. Glazing: 1/8 inch (3 mm) tempered glass.
        5. Glazing: 1/4 inch (6.3 mm) acrylic.
        6. Glazing: 1/4 inch (6.3 mm) polycarbonate.
        7. Glazing: 1/4 inch (6.3 mm) plain glass.
        8. Glazing: 1/4 inch (6.3 mm) tempered glass.
        9. Glazing: 1/2 inch (12.7 mm) sealed plain glass.
        10. Glazing: 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 \*\* The following paragraph is optional. Delete Keyed lock if not required.

* + - * 1. 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.

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

* + - 1. Operation: Manual.
      2. Operation: 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.

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

* + - * 1. Color: Almond.
        2. Color:Black.
        3. Color: Bronze.
        4. Color: Brown.
        5. Color: Cafe.
        6. Color: Slate Grey.
        7. Color: Desert Tan.
        8. Color: Sandstone.
        9. Color: Iron Ore.

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

* + - * 1. Glazing: 1/8 inch (3 mm) acrylic.
        2. Glazing: 1/8 inch (3 mm) polycarbonate.
        3. Glazing: 1/8 inch (3 mm) plain glass.
        4. Glazing: 1/8 inch (3 mm) tempered glass.
        5. Glazing: 1/4 inch (6.3 mm) acrylic.
        6. Glazing: 1/4 inch (6.3 mm) polycarbonate.
        7. Glazing: 1/4 inch (6.3 mm) plain glass.
        8. Glazing: 1/4 inch (6.3 mm) tempered glass.
        9. Glazing: 1/2 inch (12.7 mm) sealed plain glass.
        10. Glazing: 1/2 inch (12.7 mm) sealed tempered glass.
      1. Exterior Colors: Manufacturer's standard Almond.
      2. Exterior Colors: Manufacturer's standard Black.
      3. Exterior Colors: Manufacturer's standard Bronze.
      4. Exterior Colors: Manufacturer's standard Brown.
      5. Exterior Colors: Manufacturer's standard Cafe.
      6. Exterior Colors: Manufacturer's standard Slate Grey.
      7. Exterior Colors: Manufacturer's standard Desert Tan.
      8. Exterior Colors: Manufacturer's standard Sandstone.
      9. Exterior Colors: Manufacturer's standard Iron Ore.
      10. Interior Colors: Manufacturer's standard White.
      11. Wind load Design: ANSI/DASMA 102 standards to meet applicable code.
      12. Hardware: Zinc coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
      13. Lock: Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* The following paragraph is optional. Delete Keyed lock if not required.

* + - * 1. 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.

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

* + - 1. Operation: Manual.
      2. Operation: 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) shiplap.
       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.

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

* + - * 1. Glazing: 1/8 inch (3 mm) acrylic.
        2. Glazing: 1/8 inch (3 mm) polycarbonate.
        3. Glazing: 1/8 inch (3 mm) plain glass.
        4. Glazing: 1/8 inch (3 mm) tempered glass.
        5. Glazing: 1/4 inch (6.3 mm) acrylic.
        6. Glazing: 1/4 inch (6.3 mm) polycarbonate.
        7. Glazing: 1/4 inch (6.3 mm) plain glass.
        8. Glazing: 1/4 inch (6.3 mm) tempered glass.
        9. Glazing: 1/2 inch (12.7 mm) sealed plain glass.
        10. Glazing: 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: Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Keyed lock is optional. Delete if not required.

* + - * 1. 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.

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

* + - 1. Operation: Manual.
      2. Operation: 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) shiplap.
       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.

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

* + - * 1. Glazing: 1/8 inch (3 mm) acrylic.
        2. Glazing: 1/8 inch (3 mm) polycarbonate.
        3. Glazing: 1/8 inch (3 mm) plain glass.
        4. Glazing: 1/8 inch (3 mm) tempered glass.
        5. Glazing: 1/4 inch (6.3 mm) acrylic.
        6. Glazing: 1/4 inch (6.3 mm) polycarbonate.
        7. Glazing: 1/4 inch (6.3 mm) plain glass.
        8. Glazing: 1/4 inch (6.3 mm) tempered glass.
        9. Glazing: 1/2 inch (12.7 mm) sealed plain glass.
        10. Glazing: 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: Interior mounted slide lock.

\*\* NOTE TO SPECIFIER \*\* Keyed lock is optional. Delete if not required.

* + - * 1. 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.

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

* + - 1. Operation: Manual.
      2. Operation: 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.

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

* + - * 1. Glazing: 1/8 inch (3 mm) acrylic.
        2. Glazing: 1/8 inch (3 mm) polycarbonate.
        3. Glazing: 1/8 inch (3 mm) plain glass.
        4. Glazing: 1/8 inch (3 mm) tempered glass.
        5. Glazing: 1/4 inch (6.3 mm) acrylic.
        6. Glazing: 1/4 inch (6.3 mm) polycarbonate.
        7. Glazing: 1/4 inch (6.3 mm) plain glass.
        8. Glazing: 1/4 inch (6.3 mm) tempered glass.
        9. Glazing: 1/2 inch (12.7 mm) sealed plain glass.
        10. Glazing: 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 \*\* Keyed lock is optional. Delete if not required.

* + - * 1. 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 as recommended by manufacturer to suit loading required and clearances available.

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

* + - 1. Operation: Manual.
      2. Operation: 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. Performance and Design Requirements:
          1. Horizontal Wind Load on Doors in Closed Position: Withstand \_\_ psf (\_\_ kPa).
          2. Maximum Deflection When Door is in Open Horizontal Position: 1/120 of span.
          3. Door Section Assembly: Fabricated from 1-1/2 inch (38 mm) thick hollow aluminum alloy extrusions.

Stile and Rail: Assembled using 1/4 inch (6 mm) diameter bolts.

Section Framing: 6036-T6 tubular aluminum alloy extrusions.

Extrusion Wall: To be thick at the hardware mounting locations.

* + - * 1. Trusses: Provide adequate number of galvanized steel linear type reinforcing trusses to meet the wind loading requirements.
        2. Hardware Standard of Acceptance: Linear Hardware System as manufactured by Richard-Wilcox Canada.
      1. Center Stiles: 2 inch (51 mm) wide.
      2. End Stiles: 3-3/8 inches (86 mm) wide.
      3. Top and Bottom Rails: 3-3/8 inches (86 mm) wide.

\*\* NOTE TO SPECIFIER \*\* Delete panel sections option not required.

* + - 1. Paneling Sections: As shown on the architectural drawings.
      2. Paneling Sections: Aluminum Panels: 0.051 inch (1.3 mm) thick embossed aluminum sheets.
      3. Paneling Sections: Insulated Kick Panels: 1/2 inch (12.7 mm) thick insulation covered on both sides with embossed steel sheets.
      4. Paneling Sections: Plywood Kick Panels: 3/8 inch (9.5 mm) thick plywood covered on both sides with embossed steel sheets.

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

* + - 1. Glazing Sections: Full vision sections as shown on the architectural drawings.
      2. Glazing Sections: 1/8 inch (3 mm) Acrylic glazing.
      3. Glazing Sections: 1/8 inch (3 mm) Polycarbonate glazing.
      4. Glazing Sections: 1/8 inch (3 mm) Plain glass.
      5. Glazing Sections: 1/8 inch (3 mm) Tempered glass.
      6. Glazing Sections: 1/2 inch (12.7 mm) Tempered sealed insulating glass.
      7. Glazing Sections: 1/2 inch (12.7 mm) Plain sealed insulating glass.
      8. Seals: Continuous replaceable dual seals between sections.

\*\* NOTE TO SPECIFIER \*\* Delete door finish and color options not required. Custom anodized colors are also available.

* + - 1. Door Finish and Color: As shown on the architectural drawings.
      2. Door Finish and Color: Manufacturer's standard White.
      3. Door Finish and Color: Mill Finish.
      4. Exhaust Ports: 4 inch (100 mm) diameter with lockable cover and sealed perimeter.
         1. Locations: As indicated on Drawings.
      5. Hardware:
         1. Material and Finish: Commercially galvanized ASTM A653/A653M steel.

Door hardware, tracks, track mounting hardware, torsion assembly mounting brackets, hinges, and track hangers.

Track: 12 ga (2.75 mm), Roll formed 3-1/8 inch (80 mm) overall outside dimension. Horizontal Track Curve: 16 inch (406 mm) radius.

Vertical Track Mounting: 13ga (2.4mm). Adjustable Continuous Track Angle (ADCA) bolted type, field adjustable, sloped to ensure weather tight seal. Design provides continuous track support for vertical track.

Combination angle and clip mounting not acceptable.

Hinges: 12ga (2.75 mm). Embossments are designed to resist higher load and to provide greater stability and improved performance.

Track Hangers: Minimum 1-1/4 x 1-1/4 x 0.078 inch (32 x 32 x 2 mm) angles suitably spaced to transmit door weight to the building structure.

* + - * 1. Weather-Stripping: Equip doors.

Top Seal: Heavy duty, factory installed continuous seal against header,

Between Sections: Continuous co-polymer joint bulb seal

Bottom Seal: Vinyl bulb shaped astragal on bottom edge of door.

Dual Durometer Vinyl Jamb Weather Seal:� Bolted to continuous adjustable mounting angle (ADCA) for easy replacement, as supplied by Richards-Wilcox Canada.

* + - * 1. Rollers: Steel. 3 inch (76 mm) diameter, with ten, 5/16 inch (8 mm) diameter ball bearings, 7/16 inch (11 mm) diameter roller axles with inner and outer ball races of hardened steel.
        2. Roller Brackets: 12 ga (3.1 mm) galvanized steel.
        3. Shaft Mounted Counter Balance Springs:

Shaft: 1 inch (25 mm) cold rolled steel. Keyed: Full length.

Mounting: On ball bearings.

Torsion Springs: Helically wound oil tempered stress relieved spring wire. Cycles: 10,000.

Grooved Drums: Die cast aluminum.

Flexible Galvanized Aircraft Cables: 7 x 19 construction.

* + - * 1. Locking Bolt for Manual Doors: Manufacturer�s standard on the interior. Slide type bolt to engage in vertical track. Single action bolt to permit padlocking.

Right or left handed, as requested by Consultant.

* + - * 1. Foot Plate/Handle for Manual Doors: Door manufacturer�s heavy-duty foot plate/handle at bottom door section, securely fastened to inside face of door.

Location: As per reviewed shop drawings.

* + - * 1. Bumper Springs: Installed at end of each horizontal track to stop door travel.
        2. Track Guards: Continuous 3/16 inch thick x 5 ft (4.5 mm x 1524 mm) high. Chamfered 45 degree at top. Finish: Gray primer.
        3. Door Size and Hardware Lift Type: As shown in door schedule and/or drawings.

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

* + - 1. Operation: Manual.
      2. Operation: Electric.
         1. Jack Shaft Type Electric Operators: As shown on Drawings,

Approximate Speed: 8 inch (200 mm) per second.

* + - * 1. Jack Shaft Type Electric Operators: Lift Master, industrial duty logic control type operator with on board radio receiver.

Model "H" to NEMA 1, Equipped with the Following:

Adjustable friction clutch, time delay on reverse, solenoid brake, and integral enclosure containing the controls.

Disconnect: Floor level.

Emergency manual chain hoist assembly with electrical interlock,

Motor: \_\_ HP, suitable for \_\_ volts, \_\_ Ph, 60 Hz power supply.

One push button station "OPEN/CLOSE/STOP" to NEMA \_\_,

Mounting: Inside wall near door jamb on operator side.

"Featheredge" Reversing Safety Edge: Along bottom edge of door. Reverses on contact with an object.

As supplied by Service Door Industries.

Hose type pneumatic safety edges will not be accepted.

Power to be supplied through reelite.

* + - * 1. Power Supply and Fused Disconnect: Near opening on operator side by Division 16. Wiring from the fused disconnect to the operator and to the controls by the door contractor.

\*\* 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) shiplap.
       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.

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

* + - 1. Operation: Manual.
      2. Operation: 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: Sectional stile and rail secured with 1/4 inch (6 mm) diameter bolts.
          1. Size: See Drawings. The door is 1 inch (25 mm) higher than the finished door opening and extends 1 inch (25 mm) beyond the jamb on either side of finished door opening width.
       2. Structural Performance Requirements:
          1. Wind Loads: 10.0 psf design load/15.0 psf test load standard.
          2. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.

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

* + - 1. Door Operation: Manual.
      2. Door Operation: Hand chain.
      3. Door Operation: Electric motor.

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

* + - 1. Jamb Construction: Steel jambs with self-tapping fasteners.
      2. Jamb Construction: Wood jambs with lag screw fasteners.
      3. Jamb Construction: Masonry jambs with anchor bolt fasteners.
      4. Sections:
         1. Stiles and Rails Material: 1-3/4 inches (44 mm) thick, 6063-T6 aluminum alloy.

Joined together with 5/16 inch (8 mm) diameter screws.

* + - * 1. Aluminum Panels: 0.050 inch (1.3 mm) thick or glazing, when specified, fill the spaces between stiles and rails.
        2. Combined Dimension of 2 Adjoining Intermediate Meeting Rails: 3-1/4 inches (83 mm).
        3. Bottom Rail and Top Rail Height: 5-3/16 inches (132 mm).
        4. End Stiles: 3-3/8 inches (86 mm) or 6-1/2 inches (165 mm) wide as determined by overall door width.

\*\* NOTE TO SPECIFIER \*\* Delete center stiles and finish options not required.

* + - * 1. Center Stiles: 1-7/16 inches (36 mm) wide.
        2. Center Stiles: 2 inches (51 mm) wide.
        3. Center Stiles: 3-5/8 inches (92 mm) wide.
        4. Finish: ArmorBrite Powdercoat: Color as selected by Architect.
        5. Finish: ArmorBrite Powdercoat: Color: \_\_\_\_\_\_\_\_.
        6. Seals:

Door Bottom: Flexible U-shaped vinyl seal retained in aluminum rail.

Between Sections: Bulb-type joint seal.

Top Section: Blade seal to prevent airflow above header.

* + - * 1. Trussing: Designed to withstand specified wind load.
        2. Door Deflection in Horizontal Position: 1/120th of door width.
        3. Windows: Provide door sections with windows in lieu of 0.050 inch (1.3 mm) aluminum filler panels. Locations to comply with door elevation drawings.

\*\* NOTE TO SPECIFIER \*\* Delete glazing options not required then delete glazing types not required.

Non-Impact Rated Glazing: 1/8 inch (3.2 mm) single pane glazing.

Clear Glass: DSB non-insulated.

Clear Tempered Glass: Non-insulated.

Clear Acrylic.

Clear Lexan.

Smoked Grey Tinted Lexan.

Smoked Grey Tinted Glass. Non-insulated.

Smoked Grey Tinted Tempered Glass: Non-insulated.

Satin Glass: Non-insulated.

Satin Tempered Glass: Non-insulated.

Bronze Tinted Glass: Non-insulated.

Bronze Tinted Tempered Glass: Non-insulated.

Black Privacy Glass: Non-insulated.

Black Privacy Tempered Glass: Non-insulated.

Raised Clear Glass: Non-insulated.

Raised Clear Tempered Glass: Non-insulated.

Non-Impact Rated Glazing: 1/4 inch (6.4 mm) single pane glazing.

Clear Glass: Non-insulated.

Clear Tempered Glass: Non-insulated.

Clear Laminated Glass: Non-insulated.

Clear Acrylic.

Clear Lexan.

Clear Wire Glass. Non-insulated.

Smoked Grey Tinted Lexan.

Bronze Tinted Laminated Glass: Non-insulated.

Smoked Grey Tinted Laminated Glass: Non-insulated.

Satin Laminated Glass: Non-insulated.

White Laminated Glass: Non-insulated.

Non-Impact Rated Glazing: 1/2 inch (12.69 mm) insulated glazing. 2 panes of 1/8 inch (3.2 mm).

Clear Glass DSB.

Clear Glass DSB with Breather Tube.

Clear Tempered Glass.

Clear Tempered Glass with Breather Tube.

Bronze Tinted Glass DSB.

Bronze Tinted Tempered Glass.

Smoked Grey Tinted Glass DSB.

Smoked Grey Tinted Tempered Glass.

Satin Glass DSB.

Satin Tempered Glass.

Raised Obscure Glass DSB.

Raised Obscure Tempered Glass.

Low E DSB Glass.

Low E Tempered Glass.

Solarban 60 Low E Glass.

Solarban 60 Low E Tempered Glass.

Bronze Tinted Low E DSB Glass.

Bronze Tinted Low E Tempered Glass.

Smoked Grey Tinted Low E DSB Glass.

* + - 1. Track:
         1. Material: Hot-dipped galvanized steel (ASTM A 653), fully adjustable for adequate sealing of door to jamb or weather seal.

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

* + - * 1. Configuration Type: Normal Headroom.
        2. Configuration Type: Low Headroom.
        3. Configuration Type: Vertical Lift.
        4. Configuration Type: Lift-Clearance.
        5. Configuration Type: Incline.
        6. Configuration Type: Contour.

\*\* NOTE TO SPECIFIER \*\* Delete track size, jamb types, and mounting options not required.

* + - * 1. Track Size: 2 inches (51 mm).

Jamb Type: Wood only. Mounting: Adjustable track brackets.

Jamb Type: Steel, wood, or masonry.

Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 2-5/16 x 4 inches (59 x 102 mm).

Mounting: Floor-to-shaft angles. 13 gauge (2.2 mm) minimum continuous angles from floor, past header, up to door shaft. Angle Size: 2-5/16 x 4 inches (59 x 102 mm).

Mounting: QuikClip. Clip-Angle brackets pre-assembled to 13 gauge (2.2 mm) minimum continuous angle from floor to door header and continuous angle from door header to door shaft. Angle Size: 2-5/16 x 1-1/4 inches (59 x 32 mm).

* + - * 1. Track Size: 3 inches (76 mm).

Jamb Type: Steel, wood, or masonry.

Mounting: Floor-to-header angles. 13 gauge (2.2 mm) continuous angles from floor to door header.

Angle Size: 3-1/2 x 5 inches (89 x 127 mm).

Mounting: Floor-to-shaft angles. 13 gauge (2.2 mm) continuous angles from floor, past header, up to door shaft.

Angle Size: 3-1/2 x 5 inches (89 x 127 mm).

Mounting: QuikClip. Clip-Angle brackets pre-assembled to 13 gauge (2.2 mm) continuous angle from floor to door header and continuous angle from door header to door shaft.

Angle Size: 3-1/2 x 1-1/4 inches (89 x 32 mm).

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

* + - * 1. Finish: Galvanized.
        2. Finish: ArmorBrite Powdercoat: Color as selected by Architect
        3. Finish: ArmorBrite Powdercoat: Color: \_\_\_\_\_\_\_\_\_\_\_\_.
      1. Counterbalance System: Aircraft-type, galvanized steel cables. Safety Factor: 5.
         1. Torsion Springs: Heavy duty oil-tempered wire on a continuous ball-bearing cross header shaft.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. For high cycle insert the required cycle life (15,000 - 200,000),

Spring Cycle Requirements: 10,000 cycles.

Spring Cycle Requirements: \_\_\_\_\_ cycles.

* + - 1. Hardware:
         1. Hinges and Brackets: Galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track rollers and door system with locks options not required.

* + - * 1. Track Rollers: 2 inches (50.8 mm) diameter. Hardened steel ball bearings.
        2. Track Rollers: 3 inches (76.2 mm) diameter. Hardened steel ball bearings.
        3. Door System with Locks: Exterior lock. 5-pin tumbler cylinder. Night latch and steel bar engaging track.
        4. Door System with Locks: Interior lock. With dead bolt and hole for Owner provided padlock.
        5. Perimeter Seal: Replaceable weather stripping system to reduce air infiltration.

Bracket Mounted Doors: Climate or vinyl seal with aluminum retainer.

Angle Mounted Doors: Angle clip-on seal.

* + - 1. Limited Warranty: Warranted against defects in material and workmanship from date of delivery to original purchaser.
         1. Door Sections: Five years.
         2. Window Components: Three years.
         3. Hardware and Spring Components: One year or cycle life of springs.
         4. Additional Limited Warranty Requirements: In accordance with manufacturer�s full standard limited warranty documentation.

\*\* 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) shiplap.
       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.

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

* 1. Operation: Manual.
  2. Operation: 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 Alumatite Model A200.

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on the size of door for manual or hand chain operation.

* + - 1. Door Operation: Manual.
      2. Door Operation: Hand chain.
      3. Door Operation: Electric motor.

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

* + - 1. Jamb Construction: Steel jambs with self-tapping fasteners.
      2. Jamb Construction: Wood jambs with lag screw fasteners.
      3. Jamb Construction: Masonry jambs with anchor bolt fasteners.
      4. Structural Performance Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete options for wind load performance not required.

* + - * 1. Wind Loads: 13.3 psf design load/ 20 psf test load standard
        2. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.
        3. International Energy Conservation Code (IECC) Requirements:

Air Infiltration: Maximum air leakage of 0.4 cfm/ft2 is required.

Testing: In accordance with DASMA 105 test procedure.

U-Factor Tested with IG Low E Glass: 0.72.

\*\* NOTE TO SPECIFIER \*\* IECC Compliance Package is optional. Delete if not required.

Air Leakage Rating: 0.24 cfm per sq ft with IECC Compliance Package.

* + - 1. Sections:
         1. Stiles and Rails Material: 2 inches (51 mm) thick, 6063-T6 aluminum alloy.

Joined together with 5/16 inch (8 mm) diameter screws.

* + - * 1. Aluminum Panels: 0.050 inch (1.3 mm) thick or glazing, when specified, fill the spaces between stiles and rails.
        2. Combined Dimension of 2 Adjoining Intermediate Meeting Rails: 3-13/16 inches (97 mm).
        3. Bottom and Top Rail Height: 5-1/4 inches (133 mm).
        4. End Stiles: 3-3/8 inches (86 mm) or 6-1/2 inches (165 mm) wide as determined by overall door width.
        5. Center Stiles: 3-5/8 inches (92 mm) wide.
        6. Finish: ArmorBrite Powdercoat finish, color as selected by Architect.

Color: \_\_\_\_\_\_\_\_.

* + - * 1. Seals:

Bottom of Door: Flexible U-shaped vinyl seal retained in aluminum rail.

Between Sections: Bulb-type joint seal.

Top Section: Blade seal to prevent airflow above header.

\*\* NOTE TO SPECIFIER \*\* Doors wider than 14 feet-2 inches (4318 mm) may require reinforcing trusses that span across windows. Consult manufacturer for more information.

* + - * 1. Trussing: Designed to withstand specified wind load.
        2. Door Deflection in Horizontal Position: 1/120th of door width.

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

* + - 1. Windows: Provide door sections with windows in lieu of 0.050 inch (1.3 mm) aluminum filler panels. Locations to comply with door elevation drawings.
         1. Impact Rated Glazing: 11/32 inch (8.7 mm) Clear.
         2. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Bronze.
         3. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Gray.
         4. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Green.
         5. Impact Rated Glazing: 11/32 inch (8.7 mm) White Interlayer.
         6. Non-Impact Rated 1/8 inch (3.2 mm) single pane glazing. Non insulating.

Clear Glass DSB.

Clear Tempered Glass.

Clear Acrylic.

Clear Lexan.

Smoked Grey Tinted Lexan.

Smoked Grey Tinted Glass.

Smoked Grey Tinted Tempered.

Satin Glass.

Satin Tempered Glass.

Bronze Tinted Glass.

Bronze Tinted Tempered Glass.

Black Privacy Glass.

Black Privacy Tempered Glass.

Raised Clear Glass.

Raised Clear Tempered Glass.

* + - * 1. Non-Impact Rated 1/4 inch (6.4 mm) single pane glazing. Non insulating.

Clear Glass.

Clear Tempered Glass.

Clear Laminated Glass.

Clear Acrylic.

Clear Lexan.

Clear Wire Glass.

Bronze Tinted Laminated Glass.

Smoked Grey Tinted Laminated Glass.

Satin Laminated Glass.

White Laminated Glass.

* + - * 1. Non-Impact Rated 1/2 inch (12.69 mm) insulated glazing. 2 panes of 1/8 inch (3.2 mm)

Clear Glass DSB.

Clear Glass with Breather Tube DSB.

Clear Tempered Glass.

Clear Tempered Glass with Breather Tube

Bronze Tinted Glass.

Bronze Tinted Tempered Glass.

Smoked Grey Tinted Glass.

Smoked Grey Tinted Tempered Glass.

Satin Glass.

Satin Tempered Glass.

Raised Obscure Glass.

Raised Obscure Tempered Glass.

Low E DSB Glass.

Low E Tempered Glass.

Solarban 60 Low E Glass.

Solarban 60 Low E Tempered Glass.

Bronze Tinted Low E DSB Glass.

Bronze Tinted Low E Tempered Glass.

Smoked Grey Tinted Low E DSB.

Smoked Grey Tinted Low E Tempered Glass.

* + - 1. Track:
         1. Material: Hot-dipped galvanized steel (ASTM A 653), fully adjustable for adequate sealing of door to jamb or weatherseal.

\*\* NOTE TO SPECIFIER \*\* Delete configuration type not required.

* + - * 1. Configuration Type: Normal Headroom.
        2. Configuration Type: Low Headroom.
        3. Configuration Type: Vertical Lift.
        4. Configuration Type: Lift-Clearance.
        5. Configuration Type: Incline.
        6. Configuration Type: Contour.

\*\* NOTE TO SPECIFIER \*\* The only mounting available on 3-inch lift-clearance is Floor-to-Shaft Angle-Mount and Clip-Angle. Refer to manufacturer's literature for other restrictions. Delete track size, jamb type and mounting options not required.

* + - * 1. Track Size: 2 inches (51 mm).

Jamb Type: Wood only.

Mounting: Adjustable track brackets.

Jamb Type: Steel, wood, or masonry.

Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 2-5/16 x 4 inches (59 x 102 mm)

Mounting: Floor-to-shaft angles. 13 gauge (2.2 mm) minimum continuous angles from floor, past header, up to door shaft. Angle Size: 2-5/16 x 4 inches (59 x 102 mm).

Mounting: QuikClip. Clip-Angle brackets pre-assembled to 13 gauge (2.2 mm) minimum continuous angle from floor to door header and continuous angle from door header to door shaft. Angle Size: 2-5/16 x 1-1/4 inches (59 x 32 mm).

* + - * 1. Track Size: 3 inches (76 mm).

Jamb Type: Steel, wood, or masonry.

Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 3-1/2 x 5 inches (89 x 127 mm) on 3-inch track.

Mounting: Floor-to-shaft angles. 13 gauge (2.2 mm) minimum continuous angles from floor, past header, up to door shaft. Angle Size: 3-1/2 x 5 inches (89 x 127 mm) on 3-inch track.

Mounting: QuikClip. Clip-Angle brackets pre-assembled to 13 gauge (2.2 mm) minimum continuous angle from floor to door header and continuous angle from door header to door shaft. Angle Size: 3-1/2 x 1-1/4 inches (89 x 32 mm) on 3-inch track.

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

* + - * 1. Finish: Galvanized.
        2. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect
        3. Finish: Color: \_\_\_\_\_\_\_\_\_\_\_\_.
      1. Counterbalance System: Aircraft-type, galvanized steel cables. Safety Factor: 5.
         1. Torsion Springs: Heavy duty oil-tempered wire on a continuous ball-bearing cross header shaft.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. For high cycle insert the required cycle life (15,000 - 200,000),

Spring Cycle Requirements: 10,000 cycles.

Spring Cycle Requirements: \_\_\_\_\_ cycles.

* + - 1. Hardware:
         1. Hinges and Brackets: Galvanized steel.
         2. Track Rollers: 2 inches (50.8 mm) diameter. Hardened steel ball bearings.
         3. Track Rollers: 3 inches (76.2 mm) diameter. Hardened steel ball bearings.

\*\* NOTE TO SPECIFIER \*\* Door may be provided with perimeter seal for jambs. Delete if not required.

* + - * 1. Perimeter Seal: Replaceable weather stripping system to reduce air infiltration.

Bracket Mounted Doors: Climate or vinyl seal with aluminum retainer.

Angle Mounted Doors: Angle clip-on seal.

\*\* NOTE TO SPECIFIER \*\* Door may be provided with exterior or interior locking device. Retain or delete paragraph below to suit project.

* + - * 1. Door System with Locks: Exterior lock. 5-pin tumbler cylinder. Night latch and steel bar engaging track.
        2. Door System with Locks: Interior lock. With dead bolt and hole for Owner provided padlock.
      1. Limited Warranty: Warranted against defects in material and workmanship from date of delivery to original purchaser.
         1. Door Sections: Five years.
         2. Window Components: Three years.
         3. Hardware and Spring Components: One year or cycle life of springs.
         4. Additional Limited Warranty Requirements: In accordance with manufacturer�s full standard limited warranty documentation.
    1. Richards-Wilcox Canada Alumatite Model A300.

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on the size of door for manual or hand chain operation.

* + - 1. Door Operation: Manual.
      2. Door Operation: Hand chain.
      3. Door Operation: Electric motor.

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

* + - 1. Jamb Construction: Steel jambs with self-tapping fasteners.
      2. Jamb Construction: Wood jambs with lag screw fasteners.
      3. Jamb Construction: Masonry jambs with anchor bolt fasteners.
      4. Structural Performance Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete options for wind load performance not required.

* + - * 1. Wind Loads: 13.3 psf design load/ 20 psf test load standard
        2. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.
        3. International Energy Conservation Code (IECC) Requirements:

Air Infiltration: Maximum air leakage of 0.4 cfm/ft2 is required.

Testing: In accordance with DASMA 105 test procedure.

U-Factor Tested with IG Low E Glass: 0.72.

\*\* NOTE TO SPECIFIER \*\* IECC Compliance Package is optional. Delete if not required.

Air Leakage Rating: 0.24 cfm per sq ft with IECC Compliance Package.

* + - 1. Sections:
         1. Stiles and Rails Material: 3 inches (76 mm) thick, 6063-T6 aluminum alloy.

Joined together with 5/16 inch (8 mm) diameter screws.

* + - * 1. Aluminum Panels: 0.050 inch (1.3 mm) thick or glazing, when specified, fill the spaces between stiles and rails.
        2. Combined Dimension of 2 Adjoining Intermediate Meeting Rails: 5-1/2 inches (140 mm).
        3. Bottom and Top Rail Height: 6-1/2 inches (165 mm).
        4. End Stiles: 3-5/16 inches (89 mm) or 6-1/2 inches (165 mm) wide as determined by overall door width.
        5. Center Stiles: 3-5/8 inches (92 mm) wide.
        6. Finish: ArmorBrite Powdercoat finish, color as selected by Architect.

Color: \_\_\_\_\_\_\_\_.

* + - * 1. Seals:

Bottom of Door: Flexible U-shaped vinyl seal retained in aluminum rail.

Between Sections: Bulb-type joint seal.

Top Section: Blade seal to prevent airflow above header.

\*\* NOTE TO SPECIFIER \*\* Doors wider than 14 feet-2 inches (4318 mm) may require reinforcing trusses that span across windows. Consult manufacturer for more information.

* + - * 1. Trussing: Designed to withstand specified wind load.
        2. Door Deflection in Horizontal Position: 1/120th of door width.

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

* + - 1. Windows: Provide door sections with windows in lieu of 0.050 inch (1.3 mm) aluminum filler panels. Locations to comply with door elevation drawings.
         1. Impact Rated Glazing: 11/32 inch (8.7 mm) Clear.
         2. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Bronze.
         3. Impact Rated Glazing: 11/32 inch (8.75 mm) Tinted Gray.
         4. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Green.
         5. Impact Rated Glazing: 11/32 inch (8.7 mm) White Interlayer.
         6. Non-Impact Rated 1/8 inch (3.2 mm) single pane glazing. Non insulating.

Clear Glass DSB.

Clear Tempered Glass.

Clear Acrylic.

Clear Lexan.

Smoked Grey Tinted Lexan.

Smoked Grey Tinted Glass.

Smoked Grey Tinted Tempered.

Satin Glass.

Satin Tempered Glass.

Bronze Tinted Glass.

Bronze Tinted Tempered Glass.

Black Privacy Glass.

Black Privacy Tempered Glass.

Raised Clear Glass.

Raised Clear Tempered Glass.

* + - * 1. Non-Impact Rated 3/16 inch (4.8 mm) single pane glazing. Non insulating.

Clear Glass DSB.

Clear Tempered Glass.

* + - * 1. Non-Impact Rated 1/4 inch (6.4 mm) single pane glazing. Non insulating.

Clear Glass.

Clear Tempered Glass.

Clear Laminated Glass.

Clear Acrylic.

Clear Lexan.

Clear Wire Glass.

Bronze Tinted Laminated Glass.

Smoked Grey Tinted Laminated Glass.

Satin Laminated Glass.

White Laminated Glass.

* + - * 1. Non-Impact Rated 1/2 inch (12.69 mm) insulated glazing. 2 panes of 1/8 inch (3.2 mm)

Clear Glass DSB.

Clear Glass with Breather Tube DSB.

Clear Tempered Glass.

Clear Tempered Glass with Breather Tube

Bronze Tinted Glass.

Bronze Tinted Tempered Glass.

Smoked Grey Tinted Glass.

Smoked Grey Tinted Tempered Glass.

Satin Glass.

Satin Tempered Glass.

Raised Obscure Glass.

Raised Obscure Tempered Glass.

Low E DSB Glass.

Low E Tempered Glass.

Solarban 60 Low E Glass.

Solarban 60 Low E Tempered Glass.

Bronze Tinted Low E DSB Glass.

Bronze Tinted Low E Tempered Glass.

Smoked Grey Tinted Low E DSB.

Smoked Grey Tinted Low E Tempered Glass.

* + - 1. Track:
         1. Material: Hot-dipped galvanized steel (ASTM A 653), fully adjustable for adequate sealing of door to jamb or weatherseal.

\*\* NOTE TO SPECIFIER \*\* Delete configuration type not required.

* + - * 1. Configuration Type: Normal Headroom.
        2. Configuration Type: Low Headroom.
        3. Configuration Type: Vertical Lift.
        4. Configuration Type: Lift-Clearance.
        5. Configuration Type: Incline.
        6. Configuration Type: Contour.

\*\* NOTE TO SPECIFIER \*\* The only mounting available on 3-inch lift-clearance is Floor-to-Shaft Angle-Mount and Clip-Angle. Refer to manufacturer's literature for other restrictions. Delete track size, jamb type and mounting options not required.

* + - * 1. Track Size: 2 inches (51 mm).

Jamb Type: Wood only.

Mounting: Adjustable track brackets.

Jamb Type: Steel, wood, or masonry.

Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 2-5/16 x 4 inches (59 x 102 mm)

Mounting: Floor-to-shaft angles. 13 gauge (2.2 mm) minimum continuous angles from floor, past header, up to door shaft. Angle Size: 2-5/16 x 4 inches (59 x 102 mm).

Mounting: QuikClip. Clip-Angle brackets pre-assembled to 13 gauge (2.2 mm) minimum continuous angle from floor to door header and continuous angle from door header to door shaft. Angle Size: 2-5/16 x 1-1/4 inches (59 x 32 mm).

* + - * 1. Track Size: 3 inches (76 mm).

Jamb Type: Steel, wood, or masonry.

Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 3-1/2 x 5 inches (89 x 127 mm) on 3-inch track.

Mounting: Floor-to-shaft angles. 13 gauge (2.2 mm) minimum continuous angles from floor, past header, up to door shaft. Angle Size: 3-1/2 x 5 inches (89 x 127 mm) on 3-inch track.

Mounting: QuikClip. Clip-Angle brackets pre-assembled to 13 gauge (2.2 mm) minimum continuous angle from floor to door header and continuous angle from door header to door shaft. Angle Size: 3-1/2 x 1-1/4 inches (89 x 32 mm) on 3-inch track.

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

* + - * 1. Finish: Galvanized.
        2. Finish: ArmorBrite Powdercoat. Color as selected by Architect.
        3. Finish: ArmorBrite Powdercoat. Color: \_\_\_\_\_\_\_\_\_\_\_\_.
      1. Counterbalance System: Aircraft-type, galvanized steel cables. Safety Factor: 5.
         1. Torsion Springs: Heavy duty oil-tempered wire on a continuous ball-bearing cross header shaft.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. For high cycle insert the required cycle life (15,000 - 200,000),

Spring Cycle Requirements: 10,000 cycles.

Spring Cycle Requirements: \_\_\_\_\_ cycles.

* + - 1. Hardware:
         1. Hinges and Brackets: Galvanized steel.
         2. Track Rollers: 2 inches (50.8 mm) diameter. Hardened steel ball bearings.
         3. Track Rollers: 3 inches (76.2 mm) diameter. Hardened steel ball bearings.

\*\* NOTE TO SPECIFIER \*\* Door may be provided with perimeter seal for jambs. Delete if not required.

* + - * 1. Perimeter Seal: Replaceable weather stripping system to reduce air infiltration.

Bracket Mounted Doors: Climate or vinyl seal with aluminum retainer.

Angle Mounted Doors: Angle clip-on seal.

\*\* NOTE TO SPECIFIER \*\* Door may be provided with exterior or interior locking device. Retain or delete paragraph below to suit project.

* + - * 1. Door System with Locks: Exterior lock. 5-pin tumbler cylinder. Night latch and steel bar engaging track.
        2. Door System with Locks: Interior lock. With dead bolt and hole for Owner provided padlock.
      1. Limited Warranty: Warranted against defects in material and workmanship from date of delivery to original purchaser.
         1. Door Sections: Five years.
         2. Window Components: Three years.
         3. Hardware and Spring Components: One year or cycle life of springs.
         4. Additional Limited Warranty Requirements: In accordance with manufacturer�s full standard limited warranty documentation.
    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) shiplap.
       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.

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

* + - 1. Panel Colors: Clear.
      2. Panel Colors: Clear (orange peel).
      3. Panel Colors: Dark Bronze.
      4. Panel Colors: Dark (Orange peel)
      5. Panel Colors: Western Bronze.
      6. Panel Colors: Blue.
      7. Panel Colors: Green.
      8. Panel Colors: White (Opal).
      9. 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.

\*\* NOTE TO SPECIFIER \*\* Lock is optional. Delete if not required.

* + - 1. Lock: Interior mounted slide lock.
      2. 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 as recommended by manufacturer to suit loading required and clearances available.

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

* + - 1. Operation: Manual.
      2. Operation: 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) shiplap.
       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.

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

* + - * 1. Color: Manufacturer's standard White.
        2. Color: Manufacturer's standard Silver.
        3. Color: 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.

\*\* NOTE TO SPECIFIER \*\* Delete paneling 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.

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

* + - 1. Paneling Colors: Clear.
      2. Paneling Colors: Clear (Orange peel)
      3. Paneling Colors: Dark Bronze.
      4. Paneling Colors: Dark Brown (Orange peel)
      5. Paneling Colors: Western Bronze.
      6. Paneling Colors: Blue.
      7. Paneling Colors: Green.
      8. Paneling Colors: White.

\*\* NOTE TO SPECIFIER \*\* Delete stiles and rails finish and color options not required.

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

\*\* NOTE TO SPECIFIER \*\* Lock is optional. Delete if not required.

* + - 1. Lock: Interior mounted slide lock.
      2. 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 as recommended by manufacturer to suit loading required and clearances available.

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

* + - 1. Operation: Manual.
      2. Operation: 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.

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

* + - 1. Shaft: 1 inch (25 mm) 14 gauge mill or galvanized tube, recommended for doors up to 450 lbs (205 kg)
      2. Shaft: 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. Shaft: 1 inch (25 mm) solid CRS shaft with full length keyway, recommended for doors up to 1000 lbs (450 kg).
      4. Shaft: 1-1/4 inch (32 mm) solid CRS shaft with full-length keyway, recommended for doors over 1000 lbs (450 kg).
      5. 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.

\*\* NOTE TO SPECIFIER \*\* Delete mounting options not required. Not available for CE or EU doors.

* + - * 1. Mounting: ADCA: 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.
        2. Mounting: Clip Angle: 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.
        3. Mounting: Bracket: 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.

\*\* NOTE TO SPECIFIER \*\* Delete the track curve option not used.

* + - * 1. Horizontal Track Curve: 12 inch (305 mm).
        2. Horizontal Track Curve: 16 inch (406 mm).
        3. Rollers: 2 inch (50 mm) white nylon race, 10 ball bearings. Stem: zinc plated.
        4. Roller Brackets: 14 gauge (2.0 mm) thick commercially galvanized steel. Graduated design to suit the vertical track slop to ensure weather tight seal.
      1. Track 3 inches (75 mm): Rolled formed 12 gauge (2.7 mm) galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete mounting options not required. Not available for CE or EU doors.

* + - * 1. Mounting: ADCA: 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.
        2. Mounting: Clip Angle: 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.
        3. Mounting: Bracket: 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.
        4. 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.
        5. Horizontal Track Curve: 16 inch (406 mm) radius.

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

* + - * 1. Rollers: 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.
        2. Rollers: 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.
        3. 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: Interior slide bolt.

\*\* NOTE TO SPECIFIER \*\* Keyed lock is optional. Delete if not used.

* + - * 1. Keyed lock.

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

* + - 1. Pusher springs. For 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: With night lock and 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 \*\* Recommended for doors wider than 16 ft 2 inches (4930 mm). Delete if not required.

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

\*\* NOTE TO SPECIFIER \*\* Recommended on manual operated doors over 144 sq ft (13.4 sq m) 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 track to follow roof pitch for standard and high lift doors.
      4. Track guards. 3/16 inch (4.8 mm) 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: 3 inch (76 mm).
      2. Exhaust Port: 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. Delete article if electric operator is specified with the actual door.

* 1. ELECTRIC OPERATORS AND CONTROLS
     1. Pulse DC1000 Direct Drive (1 HP): 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 with 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.

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs are optional. Delete options not required.

* + - * 1. Safety Edge: Wireless, Featheredge on leading edge of bottom section wired to reverse the door closing in case it detects an obstruction.
        2. 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 sq ft.
    1. Pulse DC750 Direct Drive (3/4 HP): 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 with 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.

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs are optional. Delete options not required.

* + - * 1. Safety Edge: Wireless, Featheredge on leading edge of bottom section wired to reverse the door closing in case it detects an obstruction.
        2. 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. Pulse DC500 Direct Drive (1/2 HP): 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.

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs are optional Delete options not required.

* + - * 1. Safety Edge: Wireless, Featheredge on leading edge of bottom section wired to reverse the door closing in case it detects an obstruction.
        2. 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. One push button station "OPEN/CLOSE/STOP" to NEMA 1, for inside wall mounting near the door jamb on the operator side.
         2. 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 work true to dimensions detailed and square, and to the reviewed shop drawings, free from distortion and defects detrimental to the appearance and performance.
     2. Verify the door opening dimensions prior to the fabrication of the doors.
     3. Doors shall be 1 inch (25 mm) higher than finished openings and extend 1 inch (25 mm) beyond jamb on either side of finished opening width.
     4. Shop and field connections shall comply with CAN/CSA S16.1-M.
     5. Accurately fit joints and intersecting members with adequate fastenings.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until the 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 with 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