SECTION 08 36 16

SECTIONAL OVERHEAD DOORS

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\*\* NOTE TO SPECIFIER \*\* Raynor; commercial coiling and rolling doors.  
This section is based on the products of Raynor, which is located at:1101 East River Rd., P. O. Box 448Dixon, IL 61021-0448Toll Free Tel: 800-4-RAYNORTel: 815-288-1431Fax: 888-598-4790Email: [request info (architectsupport@raynor.com)](https://arcat.com/rfi?action=email&company=Raynor&message=RE%253A%2520Spec%2520Question%2520(08360rgd)%253A%2520&coid=35092&spec=08360rgd&rep=&fax=888-598-4790)  
Web: <http://www.raynor.com>   
 [ [Click Here](https://arcat.com/company/raynor-35092) ] for additional information.  
For more than 60 years, architects and construction specifiers have counted on Raynor for doors and electric operators that meet the harshest environment and application demands. For your convenience, additional Raynor commercial specifications and drawings can be downloaded from [www.raynor.com](http://www.raynor.com) and are available on CD-ROM.  
 Raynor has more than 600 professional installing distributors in the United States and throughout 54 nations around the world. They pride themselves in excellent product knowledge, installation, and service after the sale. Earn CE units and receive valuable knowledge about commercial doors by participating in an AIA/CES course. If you would like a Raynor Representative to contact you about presenting an AIA/CES course to your company, fill out an online form at [www.raynor.com](http://www.raynor.com) , or contact us at 1-800-4-RAYNOR.   
Refer to specifications in this section for the following types of Raynor Overhead Doors: Coiling and rolling doors including DuraCoil, DuraShutter, DuraGrille, FireCoil, FireShutter, FabriCoil and RapidCoil. ArmorBrite is a trademark of Tiger Drylac.

1. GENERAL
   1. SECTION INCLUDES
      1. Commercial sectional doors.
         1. Thermal sealing doors.
         2. Thermal sandwich doors.
         3. Ribbed pan doors.
         4. Rail and style aluminum doors.
         5. Raised panel doors.
      2. Electric operators.
   2. RELATED SECTIONS

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

* + 1. Section 05 50 00 - Metal Fabrications.
    2. Section 06 10 00 - Rough Carpentry. Door opening jamb and head members
    3. Section 08 71 00 - Door Hardware.
    4. Section 09 90 00 - Painting and Coating.
    5. Section 11 21 24 - Money Changing Machines.
    6. 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 - American National Standard Institute Test Method for Thermal Transmittance and Air Infiltration of Garage Doors
       3. ANSI/DASMA 108 - American National Standards Institute Standard Method for Testing Sectional Garage Doors and Rolling 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 A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
       5. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
       6. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
       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
    3. Food and Drug Administration (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.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     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. Performance Standards: Provide test data validating the following:
        1. Door Section: Gloss retention, fade resistance, FDA compliance, cold crack performance, load to rebound, dent resistance impact.
        2. Drive Train: Spring cycle life, track, hinges, rollers, cable assembly, cable strength.
        3. Door Assembly: Thermal performance, deflection, wind load.
     4. Shop Drawings:
        1. Provide drawings indicating track details, head and jamb conditions, spring shafts, anchorage, accessories, finish colors, patterns and textures, operator mounts and other related information.
        2. Regulatory Requirements and Approvals: Provide shop drawings in compliance with local Authority having Jurisdiction (AHJ).
     5. Certifications:
        1. Submit manufacturer's certificate that products meet or exceed specified requirements.
        2. Submit installer qualifications.

\*\* 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.
  1. QUALITY ASSURANCE
     1. Installer Qualifications: Utilize an authorized installer of door manufacturer who has demonstrated experience on projects of similar size and complexity.
     2. Manufacturer Qualifications: Company with a minimum of five-year experience in producing the specified type of doors.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store products in manufacturer's unopened packaging until ready for installation.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  4. WARRANTY
     1. Provide manufacturer's standard warranty against defects in material and workmanship, as further described with each model in Part 2 of this Section.
     2. Raynor warrants the electrical operator and component parts for two (2) years against defects in material and workmanship when purchased as operator only.
     3. Raynor warrants the electrical operator and component parts against defects in material and workmanship for three (3) years, on the operator only, when purchased with any model of Raynor commercial sectional door.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Raynor, which is located at:1101 East River Rd., P. O. Box 448Dixon, IL 61021-0448Toll Free Tel: 800-4-RAYNORTel: 815-288-1431Fax: 888-598-4790Email: [request info (architectsupport@raynor.com)](https://arcat.com/rfi?action=email&company=Raynor&message=RE%253A%2520Spec%2520Question%2520(08360rgd)%253A%2520&coid=35092&spec=08360rgd&rep=&fax=888-598-4790);Web: <http://www.raynor.com>

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

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

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

* 1. SECTIONAL THERMAL SEALING DOORS
     1. ThermaSeal Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 wind loads options not required. 13.3 psf design load applies to models TM300, TM320, TM200, TM220, and TM175. 10.0 psf design load applies to model TM200C.

* + - * 1. Wind Loads: 13.3 psf design load / 20 psf test load standard.
        2. Wind Loads: 10.0 psf design load /15.0 psf test load standard.
        3. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.
        4. International Energy Conservation Code (IECC) Requirements:

Air Infiltration: Maximum air leakage of 0.4 cfm per sq ft is required. Testing to be in accordance with DASMA 105 test procedure.

Raynor ThermaSeal TM300 and TM320 provide an air leakage rating of 19 cfm per sq ft with optional IECC Compliance Package.

Raynor ThermaSeal TM200 and TM220 provide an air leakage rating of 0.12 cfm per sq ft with optional IECC Compliance Package.

Raynor ThermaSeal TM175 provides an air leakage rating of 0.22 cfm per sq ft with optional IECC Compliance Package.

Raynor ThermaSeal TM300 and TM320 provide an installed U-factor of 0.16

Raynor ThermaSeal TM200 and TM220 provide an installed U-factor of 0.19.

Raynor ThermaSeal TM175 provides an installed U-factor of 0.21.

\*\* NOTE TO SPECIFIER \*\* Delete door sections models not required.

* + - 1. Sections: ThermaSeal TM320:
         1. Sections shall be pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
         2. Material: Steel sandwich construction, 3 inches (76 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of 20 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

Color: White polyester paint.

ColorWave Enamel Paint Finish: Color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

Insulation: Expanded polyurethane with an R-value of 24.54.

* + - 1. Sections: ThermaSeal TM300:
         1. Pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
         2. Material: Steel sandwich construction, 3 inches (76 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of 25 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Dark Brown - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

Color: Beige - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

Color: Sepia - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

Color: Frost White - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Expanded polyurethane with R-value of 24.54.
      1. Sections: ThermaSeal TM200:
         1. Pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
         2. Material: Steel sandwich construction, 2 inches (51 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of 26 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Frost White - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Expanded polyurethane with R-value of 18.3.
      1. Sections: ThermaSeal TM200C:
         1. Pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 20 gauge galvanized steel.
         2. Material: Steel sandwich construction, 2 inches (51 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of 26 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint

Color: Frost White - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint

Color: Ivory - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint

Color: Desert Tan polyester paint

Color: Sandstone polyester paint

Color: Beige - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint

Color: Bronzetone polyester paint

Color: Dark Brown polyester paint

Color: Sepia - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint

Color: Battleship Grey polyester paint

Color: Charcoal - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint

Color: Slate polyester paint

Color: Black - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint

* + - * 1. Insulation: Expanded polyurethane with R-value of 18.
      1. Sections: ThermaSeal TM220:
         1. Pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
         2. Material: Steel sandwich construction, 2 inches (51 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of 20 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Expanded polyurethane with R-value of 18.3.
      1. Sections: ThermaSeal TM175:
         1. Pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
         2. Material: Steel sandwich construction, 1-3/4 inches (44 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of 25 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Dark Brown polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

Insulation: Expanded polyurethane with R-value of 16.4.

* + - 1. Seals: Interior and exterior skins to be separated by a molded thermal break and weather seal along section joint. Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional dual-durometer vinyl blade seal on top section to prevent airflow above header/
      2. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

\*\* NOTE TO SPECIFIER \*\* Some restrictions to window location and window size may apply based on door height. Actual window width may vary slightly based on door width. Contact manufacturer directly for more detailed information. Delete windows paragraph if not required or delete sizes and options not required.

* + - 1. Windows: Locations to comply with door elevation drawings.
         1. Window in Rectangular Two-Piece Black Frame:

Size: 24 x 8 inches (610 x 203 mm).

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick tempered glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass with breather tube.

Size: 24 x 12 inches (610 x 305 mm).

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick tempered glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass with breather tube.

Size: 34 x 16 inches (864 x 406 mm) window in a rectangular two-piece black frame.

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass

* + - * 1. Full-view window consisting of aluminum stile and rail construction and color matched to door exterior with powdercoat paint. Full View to be provided as follows.

Impact Rated Glazing: 11/32 inch (8.7 mm).

Clear Impact Glass

Tinted Bronze Impact Glass

Tinted Gray Impact Glass

Tinted Green Impact Glass

White Interlayer Impact Glass

Non-Impact Rated Glazing:

Single Pane Glazing: 1/8 inch (3.2 mm).

Clear Glass: DSB non-insulated.

Clear Tempered Glass: Non-insulated.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing.

Smoked Grey Tinted Lexan: Lexan glazing.

Smoked Grey Tinted Glass: Non-insulated glass.

Smoked Grey Tinted Tempered: Non-insulated glass.

Satin Glass: Non-insulated glass.

Satin Tempered Glass: Non-insulated glass.

Bronze Tinted Glass: Non-insulated glass.

Bronze Tinted Tempered Glass: Non-insulated glass.

Black Privacy Glass: Non-insulated glass.

Black Privacy Tempered Glass: Non-insulated glass.

Raised Clear Glass: Non-insulated glass.

Raised Clear Tempered Glass: Non-insulated glass.

Single Pane Glazing: 3/16 inch (4.8 mm).

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Single Pane Glazing: 1/4 inch (6.4 mm).

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Clear Laminated Glass: Non-insulated glass.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing

Clear Wire Glass: Non-insulated glass.

Bronze Tinted Laminated Glass: Non-insulated glass.

Smoked Grey Tinted Laminated Glass: Non-insulated glass.

Satin Laminated Glass: Non-insulated glass.

White Laminated Glass: Non-insulated glass.

Insulated Glazing: 1/2 inch (12.7 mm).

Insulated Clear Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Clear Tempered Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Bronze Tinted Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Bronze Tinted Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Smoked Grey Tinted Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Smoked Grey Tinted Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Satin Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Satin Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Raised Obscure Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Raised Obscure Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Solarban 60 Low E Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Solarban 60 Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Bronze Tinted Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Bronze Tinted Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Smoked Grey Tinted Low E DSB: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Smoked Grey Tinted Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

\*\* NOTE TO SPECIFIER \*\* For TM300 and TM320 models only. Delete if not required.

Insulated Glazing: 1 inch (25.4 mm)

Insulated Clear Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Clear Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Tempered Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass

Insulated Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Satin Tempered Glass. Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

* + - 1. Track: Hot-dipped galvanized steel per 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: ArmorBrite Powdercoat Finish. Color: \_\_\_\_\_\_\_\_\_\_\_\_.
      1. Counterbalance System: Aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High Cycle: \_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (51 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish door system with locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish door system with locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. ThermaSeal Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Raynor also warrants the door sections against delamination of the insulation from the steel skins for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.
  1. SECTIONAL THERMAL SANDWICH DOORS (POLYSTYRENE OR POLYURETHANE INSULATION)

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

* + 1. TC Series Sectional Thermal Sandwich Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 wind load option not required. 15.0 psf test load is standard

* + - * 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 sections options not required.

* + - 1. Sections: TC200:
         1. Pressure bonded to 1-7/8 inches (48 mm) thick expanded polystyrene core with interior and exterior skins separated by a continuous thermal break. Hinge reinforcement plates shall be 16 gauge edge plates and 16 gauge center plates, located within section interior at every hinge location. End stiles to be 18 gauge galvanized steel.
         2. Material: Steel sandwich construction, 2 inches (51 mm) thick, roll formed from draw quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior and interior skin to be constructed of 26 gauge steel embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Dark Brown - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

ArmorBrite Powdercoat finish, color as selected by Architect.

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

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Expanded polystyrene with R-value of 10.25.
      1. Sections: TC224.
         1. Pressure bonded to a 1-7/8 inches (48 mm) thick expanded polystyrene core with interior and exterior skins separated by a continuous thermal break. Hinge reinforcement plates shall be 16 gauge edge plates and 16 gauge center plates, located within section interior at every hinge location. End stiles to be 18 gauge galvanized steel.
         2. Material: Steel sandwich construction, 2 inches (51 mm) thick, roll formed from draw quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin to be constructed of 24 gauge steel embossed stucco texture and interior skin to be constructed of 26 gauge steel embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Dark Brown - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

ArmorBrite Powdercoat finish, color as selected by Architect.

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

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Expanded polystyrene with R-value of 10.25.
      1. Seals: Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail.

\*\* NOTE TO SPECIFIER \*\* Delete optional blade seal below if not required.

* + - * 1. Provide blade seal on top section to prevent airflow above header.
      1. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

\*\* NOTE TO SPECIFIER \*\* Some restrictions to window location and window size may apply based on door height. Actual window width may vary slightly based on door width. Contact manufacturer directly for more detailed information. Delete windows paragraph if not required or delete sizes and options not required.

* + - 1. Windows: Locations to comply with door elevation drawings.
         1. Window in Rectangular Two-Piece Black Frame:

Size: 24 x 8 inches (610 x 203 mm).

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick tempered glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass with breather tube.

Size: 24 x 12 inches (610 x 305 mm).

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick tempered glass.

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass with breather tube.

Size: 34 x 16 inches (864 x 406 mm) window in a rectangular two-piece black frame.

Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass

* + - * 1. Full-view window consisting of aluminum stile and rail construction and color matched to door exterior with powdercoat paint. Full View to be provided as follows.

Impact Rated Glazing: 11/32 inch (8.7 mm).

Clear Impact Glass.

Tinted Bronze Impact Glass.

Tinted Gray Impact Glass.

Tinted Green Impact Glass.

White Interlayer Impact Glass.

Non-Impact Rated Glazing: Provide as follows:

Single Pane Glazing: 1/8 inch (3.2 mm).

Clear Glass: DSB non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing.

Smoked Grey Tinted Lexan: Lexan glazing.

Smoked Grey Tinted Glass: Non-insulated glass.

Smoked Grey Tinted Tempered: Non-insulated glass.

Satin Glass: Non-insulated glass.

Satin Tempered Glass: Non-insulated glass.

Bronze Tinted Glass: Non-insulated glass.

Bronze Tinted Tempered Glass: Non-insulated glass.

Black Privacy Glass: Non-insulated glass.

Black Privacy Tempered Glass: Non-insulated glass.

Raised Clear Glass: Non-insulated glass.

Raised Clear Tempered Glass: Non-insulated glass.

Single Pane Glazing: 3/16 inch (4.8 mm).

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Single Pane Glazing: 1/4 inch (6.4 mm).

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Clear Laminated Glass: Non-insulated glass.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing

Clear Wire Glass: Non-insulated glass.

Bronze Tinted Laminated Glass: Non-insulated glass.

Smoked Grey Tinted Laminated Glass: Non-insulated glass.

Satin Laminated Glass: Non-insulated glass.

White Laminated Glass: Non-insulated glass.

Insulated Glazing: 1/2 inch (12.69 mm).

Clear Glass: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Clear Glass with Breather Tube: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Clear Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Clear Tempered Glass with Breather Tube: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Bronze Tinted Glass: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Bronze Tinted Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Smoked Grey Tinted Glass: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Smoked Grey Tinted Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Satin Glass: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Satin Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Raised Obscure Glass: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Raised Obscure Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Low E DSB Glass: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Low E Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Solarban 60 Low E Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Solarban 60 Low E Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Bronze Tinted Low E DSB Glass: 2panes of 1/8 inch (3.2 mm) DSB glass.

Bronze Tinted Low E Tempered Glass: 2 panes of 1/8 inch (3.2 mm) tempered glass.

Smoked Grey Tinted Low E DSB: 2 panes of 1/8 inch (3.2 mm) DSB glass.

Smoked Grey Tinted Low E Tempered Glass: 2 panes of 1/8 inch (3.2 mm) Tempered glass.

* + - 1. Track: Hot-dipped galvanized steel per ASTM A653, 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 options not required.

* + - * 1. Finish: Galvanized.
        2. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect.
        3. Finish: ArmorBrite Powdercoat Finish: Color: \_\_\_\_\_\_\_\_.
      1. Counterbalance System: With aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High cycle: \_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (51 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish Door System with Locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish Door System with Locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. TC Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten (10) years from date of delivery to the original purchaser. Raynor also warrants the door sections against delamination of the insulation from the steel skins for ten (10) years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one (1) year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (1) (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.
    1. TH Series Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 wind load option not required. 15.0 psf test load is standard

* + - * 1. Wind Loads: 10.0 psf design load / 15.0 psf test load standard
        2. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.
      1. Section: TH160:
         1. Pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
         2. Material: Steel sandwich construction, 1-5/8 inches (41 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of .015 thick steel and interior skin shall be 0.015 inch thick with embossed stucco texture.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

Color: White polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Expanded polyurethane with R-value of 14.8.
      1. Seals: Interior and exterior skins to be separated by continuous hot melt to form thermal break and complete weatherseal along section joint. Bottom of door to have flexible U-shaped EPDM rubber seal retained in aluminum rail. Optional dual-durometer vinyl blade seal on top section to prevent airflow above header
      2. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

\*\* NOTE TO SPECIFIER \*\* Some restrictions to window location and window size may apply based on door height. Actual window width may vary slightly based on door width. Contact manufacturer directly for more detailed information. Delete windows paragraph if not required.

* + - 1. Windows: Locations to comply with door elevation drawings.
         1. 24 x 12 inches (610 x 305 mm) window in a rectangular two-piece black frame.

\*\* NOTE TO SPECIFIER \*\* Door sections are available glazed with insulating glass. Retain, edit, or delete paragraphs below to suit project.

* + - 1. Glazing: Windows to be provided with insulated glazing units as follows:
         1. Glass consisting of two panes of 1/8 inch (3.2 mm) thick DSB glass.
         2. Glass consisting of two panes of 1/8 inch (3.2 mm) thick acrylic.
      2. Track: Hot-dipped galvanized steel per 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 \*\* Delete finish option not required. If galvanized steel finish is acceptable, delete both powdercoat options.

* + - * 1. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect
        2. Finish: ArmorBrite Powdercoat Finish: Color: \_\_\_\_\_\_\_\_.

\*\* 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.

* + - 1. Counterbalance System: Aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High cycle: \_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (50.8 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76.2 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish door system with locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish door system with locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. TH Series Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Raynor also warrants the door sections against delamination of the insulation from the steel skins for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.
    1. FlexFit Series Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 \*\* Insert required wind load p.s.f.

* + - * 1. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.
      1. Sections: FF175:
         1. Sections shall contain 1.44 inch expanded polystyrene insulation sandwiched between interior and exterior panels. End stiles to be 12-gauge galvanized steel.
         2. Material: Sandwich construction, 1-3/4 inches (44 mm) thick. Exterior skin shall be constructed of 1/8 inch (3 mm) non-conductive, UV stabilized pultruded fiberglass reinforced polymer (FRP) material with additional anti-yellowing UV protective coating. Interior skin shall be constructed of 1/8 inch extruded HDPE and manufactured with materials in compliance with FDA regulation 21 CFR 177.1520. Skins will be bolted together around 1.5 inch (38 mm)x 1/8 inch (3 mm) square tube framing constructed of pultruded fiberglass reinforced polymer (FRP). Bolts shall be carriage style heads on exterior and blind-head style on interior to reduce risk of injury.

Interior and exterior skins shall be one contiguous piece without splices up to 20 feet 2 inches (6146 mm) in length.

Square tube frame rails shall be one contiguous piece without splices up to 20 feet 2 inches (6146 mm) in length.

* + - * 1. Finish: Exterior and interior skins to have smooth finish.

Color: White.

* + - * 1. Insulation: Expanded polystyrene with door R-value of 9.68.
      1. Seals: Intermediate sections will incorporate white fabric reinforced section joint seals. Bottom of door to have flexible cloth reinforced U-shaped EPDM rubber seal and 3 inch (76 mm) brush seal. Header shall have dual-durometer vinyl blade seal on top section to prevent airflow above header. Jambs shall have 1 inch (25 mm) brush seals to prevent airflow. Brush seals will be mounted into continuous (no splices) extruded aluminum retainers.
      2. Trussing: Not applicable.
      3. Windows: 12 x 4 inches (305 x 102 mm) window with 1/8 inch (3.1 mm) polycarbonate lite.
      4. Track: Hot-dipped galvanized steel per ASTM A 653, fully adjustable for adequate sealing of door to jamb or weather seal.

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

* + - * 1. Configuration Type: Normal Headroom.
        2. Configuration Type: Vertical Lift.
        3. Configuration Type: Lift-Clearance.
        4. Track Size: 3 inches (76 mm).

Jamb Type: Steel, wood, or masonry.

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

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).

Finish: Galvanized.

* + - 1. Counterbalance System: Aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs on a continuous ball-bearing cross-header shaft.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. For extended cycle insert the required cycle life (50,000 - 200,000).

* + - * 1. Spring Cycle Requirements: Standard high cycle 25,000 cycles.
        2. Spring Cycle Requirements: Extended cycle: \_\_\_\_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. End Stile Hinges and Brackets: Fabricated from galvanized steel.
         2. Track Rollers: 3 inches (76.2 mm) diameter consistent with track size, with hardened steel ball bearings.
         3. Locks: Door furnished with one spring-loaded interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      2. FlexFit Limited Warranty: Raynor warrants the door sections against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.
  1. SECTIONAL RIBBED PAN DOORS
     1. SteelForm Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 wind load option not required. 15.0 psf test load is standard

* + - * 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 model SteelForm Optima (S16), SteelForm Standard (S20), SteelForm Standard (S24) or SteelForm Basic (S24C) if not required.

* + - 1. Sections: SteelForm S16:
         1. Section end stiles to be 13 gauge galvanized steel. Center stiles to be a minimum 16 gauge thickness. End stiles and center stiles to be riveted to outside face with stainless steel rivets and resistance welded to interior rail.
         2. Material: Steel pan construction, 2 inches (51 mm) thick, roll formed from 16 gauge draw-quality, hot-dipped galvanized (G90) steel complying with ASTM A 653. Exterior of door to have flush face and roll-formed tongue and groove joints for weathertight closure.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - 1. Sections: SteelForm S20.
         1. Section end stiles to be 13 gauge galvanized steel. Center stiles to be a minimum 16 gauge thickness. End stiles and center stiles to be riveted to outside face with stainless steel rivets and resistance welded to interior rail.
         2. Material: Steel pan construction, 2 inches (51 mm) thick, roll-formed from 20 gauge commercial quality, hot-dipped galvanized (G90) steel complying with ASTM A 653. Exterior of door to have flush face and roll-formed tongue and groove joints for weathertight closure.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - 1. Sections: SteelForm S24.
         1. Section end stiles and center stiles to be minimum 16 gauge galvanized steel. End stiles and center stiles to be riveted to outside face with stainless steel rivets and resistance welded to interior rail.
         2. Material: Steel pan construction, 2 inches (51 mm) thick, roll- formed from 24 gauge commercial quality, hot-dipped galvanized (G60) steel complying with ASTM A 653. Exterior of door to have two deep ribs, four pencil grooves, and roll-formed tongue-and-groove joints for weathertight closure.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Dark Brown - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

Color: Beige - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - 1. Sections: SteelForm S24C:
         1. Section end stiles and center stiles to be a minimum 16 gauge galvanized steel. End stiles and center stiles to be riveted to outside face with stainless steel rivets and resistance welded to interior rail.
         2. Material: Steel pan construction, 2 inches (51 mm) thick, roll formed from 24 gauge embossed thickness, commercial quality, hot-dipped galvanized (G40) steel complying with ASTM A 653. Exterior of door to have two deep ribs, four pencil grooves, and roll-formed tongue-and-groove joints for weathertight closure.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - 1. Insulation:

\*\* NOTE TO SPECIFIER \*\* Delete insulation and back covers not required.

* + - * 1. Expanded polystyrene. R-value of 7.70 with white impact-resistant textured covers.
        2. Expanded polystyrene. R-value of 7.70 with 26 gauge hot-dipped galvanized steel covers, stucco embossed and painted gray.
        3. Expanded polystyrene. R-value of 7.70 with 24 gauge hot-dipped galvanized steel covers, painted gray/white.
        4. Expanded polystyrene. R-value of 7.70 with 20 gauge hot-dipped galvanized steel covers, painted gray/white.
      1. Seals: Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional blade seal on top section to prevent airflow above header
      2. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

\*\* NOTE TO SPECIFIER \*\* Some restrictions to window location and window size may apply based on door height. Actual window width may vary slightly based on door width. Contact manufacturer directly for more detailed information. Delete windows paragraph if not required.

* + - 1. Windows: Locations to comply with door elevation drawings.
         1. 24 inches by 8 inches (610 mm by 203 mm) rectangular window encased in a two-piece black frame.

\*\* NOTE TO SPECIFIER \*\* Door sections without insulation are only available with single pane glass. Retain, edit, or delete paragraphs below to suit project.

* + - * 1. Glazing: Single pane 1/8 inch (3.2 mm) thick DSB glass.
        2. Glazing: Single pane 1/8 inch (3.2 mm) thick Tempered glass.
        3. Glazing: Single pane 1/8 inch (3.2 mm) thick Acrylic glass.
        4. Glazing: Single pane 1/8 inch (3.2 mm) thick Lexan glass.

\*\* NOTE TO SPECIFIER \*\* Door sections with insulation are available glazed with insulating glass. Retain, edit, or delete paragraphs below to suit project.

* + - * 1. Insulated Glazing: Two panes of 1/8 inch (3.2 mm) thick DSB glass.
        2. Insulated Glazing: Two panes of 1/8 inch (3.2 mm) thick DSB glass with breather tube.
        3. Insulated Glazing: Two panes of 1/8 inch (3.2 mm) thick tempered glass.
        4. Insulated Glazing: Full-view window consisting of aluminum stile and rail construction and color matched to door exterior with powdercoat paint.

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

* + - * 1. Impact Rated Glazing: 11/32 inch (8.7 mm) Clear Impact Glass
        2. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Bronze Impact Glass
        3. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Gray Impact Glass
        4. Impact Rated Glazing: 11/32 inch (8.7 mm) Tinted Green Impact Glass
        5. Impact Rated Glazing: 11/32 inch (8.7 mm) White Interlayer Impact Glass

\*\* NOTE TO SPECIFIER \*\* Delete non-impact rated glazing if not required or delete glazing options not required.

* + - * 1. Non-Impact Rated Glazing:

Single Pane 1/8 inch (3.2 mm) Glazing:

Clear Glass: DSB non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing.

Smoked Grey Tinted Lexan: Lexan glazing.

Smoked Grey Tinted Glass: Non-insulated glass.

Smoked Grey Tinted Tempered Glass: Non-insulated glass.

Satin Glass: Non-insulated glass.

Satin Tempered Glass: Non-insulated glass.

Bronze Tinted Glass: Non-insulated glass.

Bronze Tinted Tempered Glass: Non-insulated glass.

Black Privacy Glass: Non-insulated glass.

Black Privacy Tempered Glass: Non-insulated glass.

Raised Clear Glass: Non-insulated glass.

Raised Clear Tempered Glass: Non-insulated glass.

Single Pane: 3/16 inch (4.8 mm) Glazing:

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Single Pane: 1/4 inch (6.4 mm) Glazing:

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Clear Laminated Glass: Non-insulated glass.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing.

Clear Wire Glass non-insulated glass.

Bronze Tinted Laminated Glass non-insulated glass.

Smoked Grey Tinted Laminated Glass non-insulated glass.

Satin Laminated Glass non-insulated glass.

White Laminated Glass non-insulated glass.

Insulated Glazing: 1/2 inch (12.7 mm).

Insulated Clear Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Clear Tempered Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Bronze Tinted Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Bronze Tinted Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Smoked Grey Tinted Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Smoked Grey Tinted Tempered Glass Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Satin Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Satin Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Raised Obscure Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Raised Obscure Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Solarban 60 Low E Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Solarban 60 Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Bronze Tinted Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Bronze Tinted Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Smoked Grey Tinted Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Smoked Grey Tinted Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

* + - 1. Track: Hot-dipped galvanized steel per 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 \*\* Delete finish option not required. If galvanized steel finish is acceptable, delete both powdercoat options.

* + - * 1. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect
        2. Finish: ArmorBrite Powdercoat Finish: Color: \_\_\_\_\_\_\_\_.

\*\* 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.

* + - 1. Counterbalance System: Aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High cycle: \_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (51 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish door system with locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish door system with locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. SteelForm Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.

\*\* NOTE TO SPECIFIER \*\* Delete sectional rail and style doors if not required.

* 1. SECTIONAL RAIL AND STYLE ALUMINUM DOORS
     1. AlumaView Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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. 13.3 psf design load applies to models AV200 and AV300. 10.0 psf design load applies to model AV175.

* + - * 1. Wind Loads: 13.3 psf design load / 20 psf test load standard.
        2. Wind Loads: 10.0 psf design load /15.0 psf test load standard.
        3. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.
        4. International Energy Conservation Code (IECC) Requirements:

Air Infiltration: Maximum air leakage of 0.4 cfm/ft2 is required. Testing shall be performed in accordance with DASMA 105 test procedure.

AV200 with IG Low E Glass has a Tested U-Factor of 0.72.

Raynor AV300 and AV200 provide an air leakage rating of 0.24 cfm/ft2 with optional IECC Compliance Package.

\*\* NOTE TO SPECIFIER \*\* Delete door model AlumaView AV300, AlumaView AV200, or AlumaView AV175 if not required.

* + - 1. Section: AlumaView AV300:
         1. Material: 3 inches (76 mm) thick, 6063-T6 aluminum alloy stiles and rails joined together with 5/16 inch (8 mm) diameter screws. Aluminum panels 0.050 inch (1.3 mm) thick or glazing (when specified) fill the spaces between stiles and rails. Combined dimension of two adjoining intermediate meeting rails 5-1/2 inches (140 mm). Bottom rail height 6-1/2 inches (165 mm). Top rail height 6-1/2 inches (165 mm). End stiles 3-5/16 inches (89 mm) or 6-1/2 inches (165 mm) wide as determined by overall door width. Center stiles 3-5/8 inches (92 mm) wide.
         2. Finish: Aluminum frame extrusions and filler panels finish coated.

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

Color: Clear anodized finish.

Color: Champagne anodized finish.

Color: Light Bronze anodized finish.

Color: Medium Bronze anodized finish.

Color: Dark Bronze anodized finish.

Color: Extra Dark Bronze anodized finish.

Color: Black anodized finish.

Color: Elegant Finish Woodtones Powdercoat:

American Douglas.

American Maple.

Cherry.

Cherry With Flame.

Colony Maple.

Dark Walnut.

European Cherry.

Golden Oak.

Knotty Pine.

National Walnut.

Oak.

Oregon Douglas.

Table Cherry.

Teak.

Aged Dark Oak.

ArmorBrite Powdercoat. Color as selected by Architect.

ArmorBrite Powdercoat, Color: \_\_\_\_\_\_\_\_,

* + - 1. Sections: AlumaView AV200:
         1. Material: 2 inches (51 mm) thick, 6063-T6 aluminum alloy stiles and rails joined together with 5/16 inch (8 mm) diameter screws. Aluminum panels 0.050 inch (1.3 mm) thick or glazing (when specified) fill the spaces between stiles and rails. Combined dimension of two adjoining intermediate meeting rails 3-13/16 inches (97 mm). Bottom rail height 5-1/4 inches (133 mm). Top rail height 5-1/4 inches (133 mm). End stiles 3-3/8 inches (86 mm) or 6-1/2 inches (165 mm) wide as determined by overall door width. Center stiles 3-5/8 inches (92 mm) wide.

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

* + - * 1. Insulation: ThermaXPS extruded polystyrene provides an R-value of 4.31 when combined with double end stiles and 1/2 inch (13 mm) insulated Low-E Glass.
        2. Finish: Aluminum frame extrusions and filler panels finish coated.

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

Color: Clear anodized.

Color: Champagne anodized.

Color: Light Bronze anodized.

Color: Medium Bronze anodized.

Color: Dark Bronze anodized.

Color: Extra Dark Bronze anodized.

Color: Black anodized.

Color: Elegant Finish Woodtones Powdercoat:

American Douglas.

American Maple.

Cherry.

Cherry With Flame.

Colony Maple.

Dark Walnut.

European Cherry.

Golden Oak.

Knotty Pine.

National Walnut.

Oak.

Oregon Douglas.

Table Cherry.

Teak.

Aged Dark Oak.

ArmorBrite Powdercoat. Color as selected by Architect.

ArmorBrite Powdercoat, Color: \_\_\_\_\_\_\_\_,

* + - 1. Sections: AlumaView AV175:
         1. Material: 1-3/4 inches (44 mm) thick, 6063-T6 aluminum alloy stiles and rails joined together with 5/16 inch (8 mm) diameter screws. Aluminum panels 0.050 inch (1.3 mm) thick or glazing (when specified) fill the spaces between stiles and rails. Combined dimension of two adjoining intermediate meeting rails 3-1/4 inches (83 mm). Bottom rail and top rail height 5-3/16 inches (132 mm). End stiles 3-3/8 inches (86 mm) or 6-1/2 inches (165 mm) wide as determined by overall door width. Center stiles 1-7/16 inches (36 mm), 2 inches (51 mm), or 3-5/8 inches (92 mm) wide.
         2. Finish: Aluminum frame extrusions and filler panels finish coated.

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

Color: Clear anodized.

Color: Champagne anodized.

Color: Light Bronze anodized.

Color: Medium Bronze anodized.

Color: Dark Bronze anodized.

Color: Extra Dark Bronze anodized.

Color: Black anodized.

Color: Elegant Finish Woodtones Powdercoat:

American Douglas.

American Maple.

Cherry.

Cherry With Flame.

Colony Maple.

Dark Walnut.

European Cherry.

Golden Oak.

Knotty Pine.

National Walnut.

Oak.

Oregon Douglas.

Table Cherry.

Teak.

Aged Dark Oak.

ArmorBrite Powdercoat. Color as selected by Architect.

ArmorBrite Powdercoat, Color: \_\_\_\_\_\_\_\_.

* + - 1. Seals: Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail.

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

* + - * 1. Bulb-type joint seal between sections.
        2. Blade seal on top section 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: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 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.

\*\* NOTE TO SPECIFIER \*\* Door sections are available glazed with insulating glass, non-insulating glass, acrylic, or polycarbonate. Impact rated and non-impact rated types are available. Impact rated glass available on AV200 and AV300 only. Delete products not required.

* + - * 1. Impact Rated Glazing 11/32 inch (8.7 mm):

Clear Impact Glass.

Tinted Bronze Impact Glass.

Tinted Gray Impact Glass.

Tinted Green Impact Glass.

White Interlayer Impact Glass.

* + - * 1. Non-Impact Rated Glazing:

Single Pane Glazing: 1/8 inch (3.2 mm).

Clear Glass: DSB non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing.

Smoked Grey Tinted Lexan: Lexan glazing.

Smoked Grey Tinted Glass: Non-insulated glass.

Smoked Grey Tinted Tempered Glass: Non-insulated glass.

Satin Glass: Non-insulated glass.

Satin Tempered Glass: Non-insulated glass.

Bronze Tinted Glass: Non-insulated glass.

Bronze Tinted Tempered Glass: Non-insulated glass.

Black Privacy Glass: Non-insulated glass.

Black Privacy Tempered Glass: Non-insulated glass.

Raised Clear Glass: Non-insulated glass.

Raised Clear Tempered Glass: Non-insulated glass.

Single Pane Glazing: 3/16 inch (4.8 mm).

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Single Pane Glazing: 1/4 inch (6.4 mm).

Clear Glass: Non-insulated glass.

Clear Tempered Glass: Non-insulated glass.

Clear Laminated Glass: Non-insulated glass.

Clear Acrylic: Acrylic glazing.

Clear Lexan: Lexan glazing.

Clear Wire Glass: Non-insulated glass.

Bronze Tinted Laminated Glass: Non-insulated glass.

Smoked Grey Tinted Laminated Glass: Non-insulated glass.

Satin Laminated Glass: Non-insulated glass.

White Laminated Glass: Non-insulated glass.

Insulated Glazing: 1/2 inch (12.7 mm)

Clear Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Clear Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Clear Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Clear Tempered Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Bronze Tinted Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Bronze Tinted Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Smoked Grey Tinted Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Smoked Grey Tinted Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Satin Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Satin Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Raised Obscure Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Raised Obscure Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Solarban 60 Low E Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Solarban 60 Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Bronze Tinted Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Bronze Tinted Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Smoked Grey Tinted Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Smoked Grey Tinted Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

\*\* NOTE TO SPECIFIER \*\* The following four paragraphs apply to Model AV300 only. Delete options not required.

Insulated Glazing: 1 inch (25.4 mm) (AV300 only)

Insulated Clear Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Tempered Glass: Two panes of 1/8 inch (3.2 mm) Tempered insulated glass.

Insulated Clear Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Clear Tempered Glass with Breather Tube: Two panes of 1/8 inch (3.2 mm) tempered insulated glass

Insulated Low E DSB Glass: Two panes of 1/8 inch (3.2 mm) DSB insulated glass.

Insulated Low E Tempered Glass: Two panes of 1/8 inch (3.2 mm) tempered insulated glass.

Insulated Satin Tempered Glass. Two panes of 1/8 inch (3.2 mm) tempered insulated glass.

* + - 1. Track: 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 \*\* Delete finish option not required. If galvanized steel finish is acceptable, delete both powdercoat options.

* + - * 1. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect
        2. Finish: ArmorBrite Powdercoat Finish: Color: \_\_\_\_\_\_\_\_\_\_\_\_.

\*\* 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.

* + - 1. Counterbalance System: Aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High cycle: \_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (51 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish door system with locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish door system with locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. AlumaView Limited Warranty: Raynor warrants the door sections against defects in material and workmanship for five years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for three years from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.

\*\* NOTE TO SPECIFIER \*\* Delete commercial sectional raised panel doors if not required.

* 1. COMMERCIAL SECTIONAL RAISED PANEL DOORS
     1. Commercial BuildMark/TradeMark Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 \*\* Insert required wind load p.s.f.

* + - * 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 model Commercial TradeMark or Commercial S if not required.

* + - 1. Sections: Commercial TradeMark:
         1. Section end stiles to be 18 gauge galvanized steel and center stiles to be 20 gauge galvanized steel. End stiles to be crimp-locked to the section skin. Center stiles to be glued and crimp-locked to section skin.
         2. Material: Steel pan construction, 2 inches (51 mm) thick, roll formed from 24 gauge draw quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior surface of sections shall feature embossed Colonial Raised Panels or Ranch Raised Panels. Sections shall have tongue-and-groove joints for weather-tight closure.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

\*\* NOTE TO SPECIFIER \*\* Delete color options required.

Color: White polyester paint.

Color: Almond polyester paint.

Color: BronzeTone polyester paint.

Color: Sandstone polyester paint.

Color: Dark brown polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

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

* + - * 1. Insulation: Expanded polystyrene with R-value of 6.6 with white impact-resistant textured covers.
      1. Sections: Commercial BuildMark:
         1. Section end stiles to be 18 gauge galvanized steel and center stiles to be 20 gauge galvanized steel. End stiles to be crimp-locked to the section skin. Center stiles to be glued and crimp-locked to section skin.
         2. Material: Steel pan construction, 2 inches (51 mm) thick, roll formed from 25 gauge draw quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior surface of sections shall feature embossed Colonial Raised Panels, Ranch Raised Panels, or Flush Woodgrain Surface. Sections shall have tongue-and-groove joints for weather-tight closure.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Almond polyester paint.

Color: Sandstone polyester paint.

Color: Desert tan polyester paint.

Color: Brown polyester paint.

Color: Black polyester paint.

Color: Auburn single direction woodtone polyester paint.

Color: Mocha single direction woodtone polyester paint.

Color: Walnut single direction woodtone polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

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

* + - * 1. Insulation: Expanded polystyrene with R-value of 6.6 with white impact-resistant textured covers.
      1. Seals: Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional blade seal on top section to prevent airflow above header.
      2. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

\*\* NOTE TO SPECIFIER \*\* Some restrictions to window location and window size may apply based on door height. Actual window width may vary slightly based on door width. Contact manufacturer directly for more detailed information. Delete windows paragraph if not required.

* + - 1. Windows: Locations to comply with door elevation drawings.

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

* + - * 1. Colonial style 18 inches by 13 inches (457 mm by 330 mm) minimum window encased in an injection molded polypropylene frame.
        2. Ranch style 41 inches by 13 inches (1041 mm by 330 mm) window minimum encased in an injection molded polypropylene frame.
      1. Glazing: Windows to be provided with glazing units as follows:

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

* + - * 1. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick DSB glass.
        2. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick Tempered glass.
        3. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick Satin glass.
        4. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick Tempered Satin glass.
        5. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick DSB obscure glass.
        6. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick Tempered Obscure glass.
        7. Impact resistant 0.23" thick Polycarbonate in Aluminum frame.
      1. Track: 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 \*\* Delete finish option not required. If galvanized steel finish is acceptable, delete both powdercoat options.

* + - * 1. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect.
        2. Finish: ArmorBrite Powdercoat Finish: Color: \_\_\_\_\_\_\_\_\_\_\_\_.

\*\* 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.

* + - 1. Counterbalance System: Provided with aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High cycle: \_\_\_\_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (51 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish Door System with Locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish Door System with Locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. Commercial BuildMark, Commercial TradeMark Series Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.
    1. Commercial Aspen as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 \*\* Insert required wind load p.s.f.

* + - * 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 model AP200C or AP138C if not required.

* + - 1. Sections: Commercial Aspen AP200C:
         1. Sections shall be pressure bonded to injected polyurethane foam insulated core with interior and exterior skins separated by continuous thermal break. Hinge reinforcement plates shall be 19 gauge edge plates and 19 gauge center plates, located within section interior at every hinge location. End stiles to be 20 gauge or 16 gauge galvanized steel determined by the size of the door. Sections shall feature a tongue-and-groove joint for weather-tight closure between sections.
         2. Material: Steel sandwich construction, 2 inches (51 mm) thick, roll formed from hot dipped galvanized (G40) steel complying with ASTM A 653. Exterior skin to be constructed of 26 gauge steel and interior skin to be constructed of 27 gauge steel. Exterior skin shall be woodgrain textured and interior skin shall be stucco textured. Exterior surface of sections shall feature embossed Colonial Raised Panels, Ranch Raised Panels, Recessed Grooved Colonial Panels, Recessed Grooved Ranch Panels, Recessed Ranch Panels, Plank or Flush Woodgrain Surface.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Almond polyester paint.

Color: Brown polyester paint.

Color: Desert Tan polyester paint.

Color: BronzeTone polyester paint.

Color: Charcoal - High performance (70 percent) PVDF coating (TRINAR or equivalent) + Cool Chemistry paint.

Color: Sandstone polyester paint.

Color: Black - High performance (70 percent) PVDF coating (TRINAR or equivalent) + Cool Chemistry paint.

Color: Slate polyester paint.

Color: Walnut Single Direction Woodgrain polyester paint.

Color: Auburn Single Direction Woodgrain polyester paint.

Color: Mocha Single Direction Woodgrain polyester paint.

Color: Auburn Dual Direction Woodgrain polyester paint.

Color: Mocha Dual Direction Woodgrain polyester paint.

Color: Driftwood Dual Direction Woodgrain polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Injected polyurethane with R-value of 18.0.
      1. Section: Commercial Aspen AP138C:
         1. Pressure bonded to injected polyurethane foam insulated core with interior and exterior skins separated by continuous thermal break. Hinge reinforcement plates shall be 19 gauge edge plates and 19 gauge center plates, located within section interior at every hinge location. End stiles to be 20 gauge or 16 gauge determined by the size of the door. Sections shall feature a tongue-and-groove joint for weather-tight closure between sections.
         2. Material: Steel sandwich construction, 1-3/8 inches (35 mm) thick, roll formed from hot dipped galvanized steel complying with ASTM A 653. Exterior skin to be constructed of 26 gauge steel and interior skin to be constructed of 27 gauge steel. Exterior skin shall be woodgrain textured and interior skin shall be stucco textured. Exterior surface of sections shall feature embossed Colonial Raised Panels, Ranch Raised Panels, Recessed Ranch Panels, Recessed Grooved Colonial Panels, Recessed Grooved Ranch Panels, Plank or Flush Woodgrain Surface.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Almond polyester paint.

Color: Brown polyester paint.

Color: Desert Tan polyester paint.

Color: BronzeTone polyester paint.

Color: Black - High performance (70 percent) PVDF coating (TRINAR or equivalent) + Cool Chemistry paint.

Color: Charcoal - High performance (70 percent) PVDF coating (TRINAR or equivalent) + Cool Chemistry paint.

Color: Sandstone polyester paint.

Color: Slate polyester paint.

Color: Walnut Single Direction Woodgrain polyester paint.

Color: Auburn Single Direction Woodgrain polyester paint.

Color: Mocha Single Direction Woodgrain polyester paint.

Color: Auburn Dual Direction Woodgrain polyester paint.

Color: Mocha Dual Direction Woodgrain polyester paint.

Color: Driftwood Dual Direction Woodgrain polyester paint.

ColorWave Enamel paint finish, color as selected by Architect from Raynor's ColorWave post paint process featuring 1500 colors of Sherwin Williams Polane Enamel paint.

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

* + - * 1. Insulation: Injected polyurethane with R-value of 13.0.
      1. Seals: Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional blade seal on top section to prevent airflow above header
      2. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

\*\* NOTE TO SPECIFIER \*\* Some restrictions to window location and window size may apply based on door height. Actual window width may vary slightly based on door width. Contact manufacturer directly for more detailed information. Delete windows paragraph if not required.

* + - 1. Windows: Locations to comply with door elevation drawings.

\*\* NOTE TO SPECIFIER \*\* Delete window style not required.

* + - * 1. Colonial Style 18 inches by 13 inches (457 mm by 330 mm) minimum window encased in an injection molded polypropylene frame.
        2. Ranch Style 41 inches by 13 inches (1041 mm by 330 mm) window minimum encased in an injection molded polypropylene frame.
        3. Glazing: Windows to be provided with glazing units as follows:

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

Single Glass: 1 pane of 1/8 inch (3.2 mm) thick DSB glass.

Insulated Glass: 2 panes of 1/8 inch (3.2 mm) thick DSB glass.

Insulated Glass: 2 panes of 1/8 inch (3.2 mm) thick DSB glass with breather tube.

Single Glass: 1 pane of 1/8 inch (3.2 mm) thick DSB obscure glass

Insulated Glass: 2 panes of 1/8 inch (3.2 mm) thick DSB obscure glass.

Insulated Glass: 2 panes of 1/8 inch (3.2 mm) thick DSB obscure glass with breather tube.

Single Glass: 1 pane of 1/8 inch (3.2 mm) thick satin glass.

* + - * 1. Insulated Glass: 2 panes of 1/8 inch (3.2 mm) thick satin glass.
      1. Mounting: Sections mounted in door opening using:

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

* + - * 1. Between-Jamb Bracket Mounting: Sections mounted between door jambs, seal against exterior perimeter seal installed along vertical and top horizontal edges of jambs.
        2. Lap Jamb Angle Mounting: Section overlap door jambs by 1 inch (25 mm) on each side of door opening.
      1. Track: 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 \*\* Delete finish option not required. If galvanized steel finish is acceptable, delete both powdercoat options.

* + - * 1. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect.
        2. Finish: ArmorBrite Powdercoat Finish: Color: \_\_\_\_\_\_\_\_.

\*\* 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.

* + - 1. Counterbalance System: Provided with aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High cycle: \_\_\_\_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (50.8 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76.2 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Provide complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish door system with locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish door system with locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. Commercial Aspen Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Raynor also warrants the door sections against delamination of the insulation from the steel skins for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.
    1. StyleForm Doors as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* Delete door operation not required. There are restrictions on size of door for manual or hand chain operation. Contact manufacturer for more detailed information.

* + - 1. Operation: Manual.
      2. Operation: Hand chain.
      3. 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 \*\* Insert required wind load p.s.f.

* + - * 1. Wind Loads: 10.0 psf design load / 15.0 psf test load standard.
        2. Wind Loads: Uniform pressure of: \_\_\_\_\_\_\_\_ psf.
      1. Sections: StyleForm Optima:
         1. Sections shall be pressure bonded to a 1-7/8 inches (48 mm) thick expanded polystyrene foam core with interior and exterior skins separated by continuous thermal break. Hinge reinforcement plates shall be 16 gauge edge plates and 16 gauge center plates, located within section interior at every hinge location. End stiles to be 18 gauge galvanized steel.
         2. Material: Steel sandwich construction, 2 inches (51 mm) thick, roll formed from draw quality, hot dipped galvanized steel complying with ASTM A 653. Exterior and interior skin to be constructed of 26 gauge steel embossed woodgrain texture. Exterior surface of sections shall feature embossed Colonial Raised Panels, Ranch Raised Panels or Flush Woodgrain Surface.
         3. Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.

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

Color: White polyester paint.

Color: Dark Brown - High performance (70 percent) PVDF coating (TRINAR or equivalent) paint.

* + - * 1. Insulation: Expanded polystyrene with R-value of 10.25.
      1. Seals: Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional blade seal on top section to prevent airflow above header.
      2. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

\*\* NOTE TO SPECIFIER \*\* Some restrictions to window location and window size may apply based on door height. Actual window width may vary slightly based on door width. Contact manufacturer directly for more detailed information. Delete windows paragraph if not required.

* + - 1. Windows: Locations to comply with door elevation drawings.

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

* + - * 1. Colonial style 17 inches by 12 inches (432 mm by 305 mm) minimum window encased in an extruded PVC frame.
        2. Ranch style 40 inches by 12 inches (1016 mm by 305 mm) window minimum encased in an extruded PVC frame.
      1. Glazing: Windows to be provided with glazing units as follows:

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

* + - * 1. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick DSB glass.
        2. Single glass consisting of one pane of 1/8 inch (3.2 mm) thick DSB Obscure glass.
      1. Track: 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 \*\* Delete finish option not required. If galvanized steel finish is acceptable, delete both powdercoat options.

* + - * 1. Finish: ArmorBrite Powdercoat Finish: Color as selected by Architect.
        2. Finish: ArmorBrite Powdercoat Finish: Color: \_\_\_\_\_\_\_\_.

\*\* 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.

* + - 1. Counterbalance System: Provided with aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs 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),

* + - * 1. Spring Cycle Requirements: Standard 10,000 cycles.
        2. Spring Cycle Requirements: High cycle: \_\_\_\_\_\_\_\_ cycles.
      1. Hardware:
         1. Hinges and Brackets: Fabricated from galvanized steel.

\*\* NOTE TO SPECIFIER \*\* Delete track size not required.

* + - * 1. Track Rollers: 2 inches (51 mm) diameter consistent with track size, with hardened steel ball bearings.
        2. Track Rollers: 3 inches (76 mm) diameter consistent with track size, with hardened steel ball bearings.

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

* + - * 1. Perimeter Seal: Provide complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.

For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.

For angle mounted doors provide 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. Furnish door system with locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
        2. Furnish door system with locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
      1. StyleForm (Commercial ShowCase) Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Raynor also warrants the door sections against delamination of the insulation from the steel skins for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.

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

* 1. ELECTRIC OPERATORS

\*\* NOTE TO SPECIFIER \*\* ControlHoist (solid state) operators. Delete if not required.

* + 1. ControlHoist as manufactured by Raynor Garage Doors:

\*\* NOTE TO SPECIFIER \*\* ControlHoist 2.0 Optima operators (solid state) feature a heavy-duty gear drive running in oil for high reliability and efficient operation. They are designed for larger sectional doors and higher cycle applications. Delete if not required.

* + - 1. Model: Raynor ControlHoist Optima:
         1. Type: Jackshaft with manual chain hoist.
         2. Type: Trolley.

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

* + - * 1. Motor Horsepower Rating: Continuous 1/2 HP.
        2. Motor Horsepower Rating: Continuous 3/4 HP.
        3. Motor Horsepower Rating: Continuous 1 HP.
        4. Motor Horsepower Rating: Continuous 1-1/2 HP.
        5. Motor Horsepower Rating: Continuous 2 HP.

\*\* NOTE TO SPECIFIER \*\* Delete electrical requirements not required.

* + - * 1. Electrical Requirements: 115 volt single phase.
        2. Electrical Requirements: 230 volt single phase.
        3. Electrical Requirements: 208-230 volt three phase.
        4. Electrical Requirements: 460 volt three phase.
        5. Duty Cycle: 30 cycles per hour or 300 cycles per day.
        6. Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop, and lock bar sensor capability.

Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).

\*\* NOTE TO SPECIFIER \*\* Delete if custom wiring not required. For custom wiring contact manufacturer.

Custom wiring.

\*\* NOTE TO SPECIFIER \*\* Delete entrapment protection options not required. At least one form of monitored entrapment protection is required to allow momentary contact and radio control Operation.

* + - * 1. Entrapment Protection:

Wired Monitored electric reversing edge extending full width of door.

Wireless Monitored electric reversing edge extending full width of door.

NEMA 1 Monitored photo electric eyes mounted on jambs.

NEMA 4X Monitored photo electric eyes mounted on jambs.

\*\* NOTE TO SPECIFIER \*\* ControlHoist 2.0 Standard belt-drive operators are designed for medium- to high-cycle applications and for normal- to large-size sectional doors. Delete if not required.

* + - 1. Raynor ControlHoist Standard:

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

* + - * 1. Type: Jackshaft.
        2. Type: Jackshaft with manual chain hoist.
        3. Type: Trolley.

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

* + - * 1. Motor Horsepower Rating: Continuous 1/3 HP.
        2. Motor Horsepower Rating: Continuous 1/2 HP.
        3. Motor Horsepower Rating: Continuous 3/4 HP.

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

* + - * 1. Electrical Requirements: 115 volt single phase.
        2. Electrical Requirements: 230 volt single phase.
        3. Electrical Requirements: 208-230 volt three phase.
        4. Electrical Requirements: 460 volt three phase.
        5. Duty Cycle: 30 cycles/hour or 300 cycles/day.
        6. Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop, and lock bar sensor capability.

Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).

\*\* NOTE TO SPECIFIER \*\* Delete if custom wiring not required. For custom wiring contact manufacturer.

Custom wiring.

\*\* NOTE TO SPECIFIER \*\* Delete entrapment protection options not required. At least one form of monitored entrapment protection is required to allow momentary contact and radio control Operation.

* + - * 1. Entrapment protection:

Wired Monitored electric reversing edge extending full width of door.

Wireless Monitored electric reversing edge extending full width of door.

NEMA 1 Monitored photo electric eyes mounted on jambs.

NEMA 4X Monitored photo electric eyes mounted on jambs.

\*\* NOTE TO SPECIFIER \*\* ControlHoist 2.0 Basic belt drive operators are designed for operating sectional doors up to 14 feet high in light duty applications. Delete if not required.

* + - 1. Raynor ControlHoist Basic:

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

* + - * 1. Type: Jackshaft.
        2. Type: Jackshaft with manual chain hoist.
        3. Type: Trolley.
        4. Motor Horsepower Rating: Intermittent 1/2 HP.
        5. Electrical Requirements: 115 volt single phase.
        6. Duty Cycle: 14 cycles/hour.
        7. Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop, and lock bar sensor capability.

Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).

\*\* NOTE TO SPECIFIER \*\* Delete entrapment protection options not required. At least one form of monitored entrapment protection is required to allow momentary contact and radio control Operation.

* + - * 1. Entrapment protection:

Wired Monitored electric reversing edge extending full width of door.

Wireless Monitored electric reversing edge extending full width of door.

NEMA 1 Monitored photo electric eyes mounted on jambs.

NEMA 4X Monitored photo electric eyes mounted on jambs.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly prepared. Verify that site conditions are acceptable for installation of doors, operators, controls, and accessories. Ensure that openings are square, flush, and plumb.
      2. If substrate 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. General: Install door, track and operating equipment complete with all necessary accessories and hardware according to shop drawings, manufacturer's instructions.
      2. Lubricate bearings and sliding parts, and adjust doors for proper operation, balance, clearance, and similar requirements.
   4. PROTECTION
      1. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove and legally dispose of construction debris from project site.
      2. Remove temporary coverings and protection of adjacent work areas. Repair or replace installed products damaged prior to or during installation.
      3. Lubricate bearings and sliding parts, assure weather tight fit around door perimeter and adjust doors for proper operation, balance, clearance, and similar requirements. Protect installed products until completion of project.
      4. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION