SECTION 08360 [08 36 13]

SECTIONAL OVERHEAD DOORS

Display hidden notes to specifier. (Don't know how? Click Here)

**** NOTE TO SPECIFIER ** Wayne Dalton; Commercial Sectional Overhead Door products.**

This section is based on the products of Wayne Dalton, which is located at:
2501 S. State Highway 121 Business, Suite 200
Lewisville, TX 75067
Phone: (800) 827-3667
Web Site: www.wayne-dalton.com
Email: info@wayne-dalton.com.
[click Here] for additional information.

Since its inception in 1954, Wayne Dalton has become known as a company with innovative ideas, which far exceed industry standards. Often, Wayne Dalton is the only source for the latest garage door and garage door opener features. Because the company has always maintained a staunch commitment to developing innovative new products, Wayne Dalton is now a world leader in the garage door and garage door opener industry.

Wayne Dalton Rolling Doors have a long history of excellence in the design and construction of doors that have met and often exceeded the needs and expectations of even the most critical projects.

With numerous innovations created and experience acquired over the years, Wayne Dalton continues to lead all other manufacturers with both standard and custom-made doors from a variety of materials and colors to meet almost any need.

So whether it's enormous Titan rolling doors, protective FireStar rolling steel fire doors, ventilated Secur-Vent doors, or secure Accordion-Folding Grilles, you can feel confident that with Wayne Dalton's many years of knowledge and experience, you will get the best possible solution for your building application needs.

PART 1 GENERAL

1.1 SECTION INCLUDES
**** NOTE TO SPECIFIER ** Delete items below not required for project.**

A. Insulated Sectional Overhead Doors.

B. Steel Sectional Overhead Doors.

C. Glazed Aluminum Sectional Overhead Doors.

D. Electric Operators and Controls.

E. Operating Hardware, tracks, and support.

1.2 RELATED SECTIONS

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

A. Section 03300 - Cast-In-Place Concrete: Prepared opening in concrete. Execution requirements for placement of anchors in concrete wall construction.

B. Section 04810 - Unit Masonry Assemblies: Prepared opening in masonry. Execution requirements for placement of anchors in masonry wall construction.

C. Section 05500 - Metal Fabrications: Steel frame and supports.

D. Section 06114 - Wood Blocking and Curbing: Rough wood framing and blocking for door opening.

E. Section 07900 - Joint Sealers: Perimeter sealant and backup materials.

F. Section 08710 - Door Hardware: Cylinder locks.

G. Section 09900 - Paints and Coatings: Field painting.

H. Section 11150 - Parking Control Equipment: Remote door control.

I. Section 16130 - Raceway and Boxes: Empty conduit from control station to door operator.

J. Section 16150 - Wiring Connections: Electrical service to door operator.

1.3 REFERENCES

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

A. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.

B. ASTM A 123 – Zinc hot-dipped galvanized coatings on iron and steel products.

C. ASTM A 216 - Specifications for sectional overhead type doors.

D. ASTM A 229 - Steel wire, oil-tempered for mechanical springs.

E. ASTM A 653 - Steel sheet, zinc-coated galvanized by the hot-dipped process, commercial quality.

F. ASTM D 1929 - Ignition temperature test to determine flash and ignition temperature of foamed plastics.

G. ASTM E 84 - Tunnel test for flame spread and smoke developed index.

H. ASTM E 330 - Structural performance of exterior windows, curtain walls, and doors by uniform static air pressure difference.

I. ASTM E 413 - Classification for Rating Sound Insulation

J. ASTM E 1332 - Standard Classification for Rating Outdoor-Indoor Sound Attenuation.

K. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

1.4 DESIGN / PERFORMANCE REQUIREMENTS

**** NOTE TO SPECIFIER ** Use the applicable building code to determine the actual loading required and edit the following paragraph accordingly. Coordinate with the manufacturer for the selection of doors to meet the required criteria.**

A. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
   1. Design pressure of _____ lb/sq ft (_____kPa).

**** NOTE TO SPECIFIER ** Edit the following paragraph for power operators as required. Delete if not required.**

B. Wiring Connections: Requirements for electrical characteristics.
   1. 115 volts, single phase, 60 Hz.
   2. 230 volts, single phase, 60 Hz.
   3. 230 volts, three phase, 60 Hz.
   4. 460 volts, three phase, 60 Hz.

C. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Operation and Maintenance Data.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened labeled packaging until ready for installation.

B. Protect materials from exposure to moisture until ready for installation.

C. Store materials in a dry, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

1.9 WARRANTY

**** NOTE TO SPECIFIER ** Warranty paragraph for Series 2411, 2415, 220, 216, C2400, C-24, C-20, 451, 452 and K-AL commercial sectional doors is 1 Year and covered under General Conditions of Contract.**

**** NOTE TO SPECIFIER ** Include the following warranty paragraph for Thermospan® Series 200-20, 200, 150, and ThermoMark® Series 530, 5155, 5200 and, 5255 sectional doors. Delete if not applicable.**

A. Warranty: Manufacturer’s limited door and operators System warranty for 10 years against cracking, splitting or deterioration of steel skin due to rust.

**** NOTE TO SPECIFIER ** Include the following warranty paragraph for Thermospan® Series 125 sectional doors. Delete if not applicable.**

B. Warranty: Manufacturer’s limited door and operators System warranty for 8 years against cracking, splitting or deterioration due to rust-through.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Wayne Dalton; 2501 S. State Highway 121 Business, Suite 200, Lewisville, TX 75067. ASD. Phone: (800) 827-3667; Web Site: www.wayne-dalton.com. Email: info@wayne-dalton.com.

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

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

**** NOTE TO SPECIFIER ** Edit the following paragraphs as required and applicable to project requirements. Delete the paragraphs that are not applicable.**

2.2 INSULATED SECTIONAL OVERHEAD DOORS

**** NOTE TO SPECIFIER ** Wayne Dalton Thermospan® 200-20 insulated sectional overhead steel doors are available up to a maximum width of 24 feet 2 inches and a maximum height of 16 feet 1 inch. Edit as required to suit project requirements.**

A. Insulated Steel Sectional Overhead Doors: Wayne Dalton Thermospan 200-20 insulated sectional overhead steel doors. Units shall have the following characteristics:

1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break. Sections roll formed with two 1-3/4 inch integral struts sealed with polypropylene rib caps per section.
   a. Panel Thickness: 2 inches (51 mm).
   b. Exterior Surface: Flush smooth.
   c. Exterior Steel: 20 gauge, hot-dipped galvanized.
   d. Thermal Values: R-value of 17.50; U-value of 0.057.
   e. Air Infiltration: 0.07 cfm at 15 mph.
   f. Sound transmission class 22 when tested in accordance with ASTM E 413.
   g. Outdoor-indoor transmission class 19 when tested in accordance with ASTM E 1332.
   h. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
      1) Insulated sections tested in accordance with ASTM E 84 and achieve a flame spread Index of 75 or less, and a Smoke Developed Index of 450 or less.
      2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 698 degrees F, and a minimum Self Ignition temperature of 950 degrees F.
   i. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

      1) 20 gauge.
      2) 18 gauge.
      3) 16 gauge.
      4) 14 gauge.
   j. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 25,000 cycles are standard.**

      1) Standard cycle spring: 10,000 cycles.
      2) High cycle spring: 25,000 cycles.
      3) High cycle spring: 50,000 cycles.
      4) High cycle spring: 75,000 cycles.
      5) High cycle spring: 100,000 cycles
   k. Pass-Door:
      1) Provide with optional pass door.

**** NOTE TO SPECIFIER ** Select full view glazing or partial glazing from the following paragraphs and edit to select glazing required. Delete the one not required or delete**

entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.

l. Full View Aluminum Glazing Sections:
   1) 1/8 inch (3 mm) Double Strength glass.
   2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
   3) 1/8 inch (3 mm) Tempered glass.
   4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
   5) 1/4 inch (6 mm) Tempered glass.
   6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
   8) 1/2 inch (12.5 mm) Double Insulating glass.
   9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
   10) 1/4 inch (6 mm) Plate glass.
   11) 1/4 inch (6 mm) Polished wire glass.
   12) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
   13) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
   14) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

m. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:
   1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
   2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
   3) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   4) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
   5) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color:
   a. Two coat baked-on polyester:
      1) Interior color, white.
      2) Exterior color, white.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

   a. Interior mounted slide lock.
   b. Interior mounted slide lock with interlock switch for automatic operator.
   c. Keyed lock.
   d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
   a. Flexible bulb-type strip at bottom section.
   b. Flexible Jamb seals.
   c. Flexible Header seal.
7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

   a. Size:
      1) 2 inch (51 mm).

2) 3 inch (76 mm).

b. Type:
1) Standard lift.
2) Vertical lift.
3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.

d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: Standard Lift with roof pitch less than 2:12 (exception: some 32 inch radius applications); High Lift between 12 inch to 23 inch with roof pitch less than 1:12; some 32 inch radius applications); High Lift less than 24 inch with roof pitch less than 1:12; and Low headroom installations. Special chain hoist assemblies using a trolley rail are available for track systems. Consult manufacturer for additional information.**

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
1) Model MH – hoist
2) Model MT – trolley
3) Model MJ - jackshaft

b. Standard Duty
1) Model H – hoist
2) Model T – trolley
3) Model J – jackshaft

c. Heavy Duty
1) Model GH – hoist
2) Model GT - trolley

11. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.

a. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

b. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

c. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton Thermospan® 200 insulated sectional overhead steel doors are available up to a maximum width of 40 feet 2 inches and a maximum height of 22 feet 1 inch. Edit as required to suit project requirements.**

B. Insulated Steel Sectional Overhead Doors: Wayne Dalton Thermospan 200 insulated sectional overhead steel doors. Units shall have the following characteristics:
1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Flush non-repeating random stucco texture and 1/4 inch wide pinstriping.
c. Exterior Steel: .015 inch (0.38 mm), hot-dipped galvanized.
d. Sections roll formed with two 1-3/4 inch integral struts sealed with polypropylene rib caps per section.
e. Thermal Values: R-value of 17.50; U-value of 0.057.
f. Air Infiltration: 0.07 cfm at 15 mph.
g. Sound transmission class 22 when tested in accordance with ASTM E 413.
h. Outdoor-indoor transmission class 19 when tested in accordance with ASTM E 1332.
i. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
1) Insulated sections tested in accordance with ASTM E 84 and achieve a Flame spread Index of 10 or less, and a Smoke Developed Index of 210 or less.
2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 734 degrees F, and a minimum Self Ignition temperature of 950 degrees F.

3) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.

j. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

1) 18 gauge.
2) 16 gauge.
3) 14 gauge.

k. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 15,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles.
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

l. Pass-Door:

1) Provide with optional pass door.

**** NOTE TO SPECIFIER ** Select full view glazing or partial glazing from the following paragraphs and edit to select glazing required. Delete the one not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

m. Full View Aluminum Glazing Sections:

1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.
12) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
13) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
14) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

n. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:

1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
4) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color:

a. Two coat baked-on polyester:

1) Interior color, white.

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

1) Exterior color, white.
2) Exterior color, brown.
3) Exterior color, tan.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
   a. Flexible bulb-type strip at bottom section.
   b. Flexible Jamb seals.
   c. Flexible Header seal.
7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).
b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: Standard Lift with roof pitch less than 2:12 (exception: some 32 inch radius applications); High Lift between 12 inch to 23 inch with roof pitch less than 1:12; High Lift less than 24 inch with roof pitch less than 1:12; and Low headroom installations. Special chain hoist assemblies using a trolley rail are available for track systems. Consult manufacturer for additional information.**

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.
   3) Radio control operation.
   4) Card reader control.
   5) Photocell operation.
   6) Door timer operation.
   7) Commercial light package.
   8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton Thermospan® 150 insulated sectional overhead steel doors are available up to a maximum width of 26 feet 2 inches and a maximum height of 20 feet 1 inch. Edit as required to suit project requirements.**

C. Insulated Steel Sectional Overhead Doors: Wayne Dalton Thermospan 150 insulated sectional overhead steel doors. Units shall have the following characteristics:

1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break.
   a. Panel Thickness: 1-3/8 inches (34.92 mm).
   b. Exterior Surface: Stucco texture and 1/4 inch wide pinstriping.
   c. Exterior Steel: .009 inch (0.228 mm), hot-dipped galvanized.
   d. Sections roll formed with two 1-3/4 inch integral struts sealed with polypropylene rib caps per section.
   e. Thermal Values: R-value of 14.16; U-value of 0.071.
   f. Air Infiltration: 0.23 cfm at 15 mph.
   g. Sound transmission class 22 when tested in accordance with ASTM E 413.
   h. Outdoor-indoor transmission class 19 when tested in accordance with ASTM E 1332.
   i. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
      1) Insulated sections tested in accordance with ASTM E 84 and achieve a Flame spread Index of 10 or less, and a Smoke Developed Index of 210 or less.
      2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 734 degrees F, and a minimum Self Ignition temperature of 950 degrees F.
      3) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.
   j. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

      1) 18 gauge.
      2) 16 gauge.
   k. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

      1) Standard cycle spring: 10,000 cycles
      2) High cycle spring: 25,000 cycles.
      3) High cycle spring: 50,000 cycles.
      4) High cycle spring: 75,000 cycles.
      5) High cycle spring: 100,000 cycles.
   l. Pass-Door:
      1) Provide with optional pass door.

**** NOTE TO SPECIFIER ** Select full view glazing or partial glazing from the following paragraphs and edit to select glazing required. Delete the one not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

   m. Full View Aluminum Glazing Sections:
      1) 1/8 inch (3 mm) Double Strength glass.
      2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
      3) 1/8 inch (3 mm) Tempered glass.
      4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
      5) 1/4 inch (6 mm) Tempered glass.
      6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.

7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.
12) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
13) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
14) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

n. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:
1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
4) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color:

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

a. Two coat baked-on polyester:
1) Interior color, white.

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

2) Exterior color, white.
3) Exterior color, brown.
4) Exterior color, tan.
5) Exterior color, gray.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
1) 2 inch (51 mm).
2) 3 inch (76 mm).

b. Type:
1) Standard lift.

2) Vertical lift.
3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: Standard Lift with roof pitch less than 2:12 (exception: some 32 inch radius applications); High Lift between 12 inch to 23 inch with roof pitch less than 1:12; High Lift less than 24 inch with roof pitch less than 1:12; and Low headroom installations. Special chain hoist assemblies using a trolley rail are available for track systems. Consult manufacturer for additional information.**

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft
b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft
c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley
d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton Thermospan® 125 insulated sectional overhead steel doors are available up to a maximum width of 16 feet 2 inches and a maximum height of 16 feet 1 inch. Edit as required to suit project requirements.**

D. Insulated Steel Sectional Overhead Doors: Wayne Dalton Thermospan 125 insulated sectional overhead steel doors. Units shall have the following characteristics:
1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break.
a. Panel Thickness: 7/8 inches (22.23 mm).
b. Exterior Surface: Flush non-repeating random stucco texture and 1/4 inch wide pinstriping.
c. Exterior Steel: .009 inch (0.228 mm), hot-dipped galvanized.
d. Sections roll formed with two 1-3/4 inch integral struts sealed with polypropylene rib caps per section.
e. Thermal Values: R-value of 10.79; U-value of 0.093.
f. Sound transmission class 21 when tested in accordance with ASTM E 413.
g. Outdoor-indoor transmission class 18 when tested in accordance with ASTM E 1332.
h. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
1) Insulated sections tested in accordance with ASTM E 84 and achieve a Flame spread Index of 10 or less, and a Smoke Developed Index of 210 or less.
2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 734 degrees F, and a minimum Self Ignition temperature of 950 degrees F.
3) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.
i. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

1) 18 gauge.
2) 16 gauge.

j. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing from the following glazing paragraph and edit to select glazing required. Delete entirely if glazing is not required. Contact the manufacturer if additional requirements are required.**

k. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:
1) 1/8 inch (3 mm) Single Strength glass.
2) 1/8 inch (3 mm) Double Strength glass.
3) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.

2. Finish and Color:
a. Two coat baked-on polyester:
1) Interior color, white.
2) Exterior color, white.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
1) 2 inch (51 mm).
2) 3 inch (76 mm).

b. Type:
1) Standard lift.
2) Vertical lift.
3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

a. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.

b. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: Standard Lift with roof pitch less than 2:12 (exception: some 32 inch radius applications); High Lift between 12 inch to 23 inch with roof pitch less than 1:12; High Lift less than 24 inch with roof pitch less than 1:12; and Low headroom installations. Special chain hoist assemblies using a trolley rail are available for track systems. Consult manufacturer for additional information.**

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** ThermoMark 530 Insulated Steel Doors are available up to a maximum width of 40 feet 2 inches and a maximum height of 24 feet 1 inch. Edit as required to suit project requirements.**

E. Insulated Steel Commercial Sectional Overhead Doors: ThermoMark 530 Insulated Steel Doors by Wayne Dalton. Units shall have the following characteristics:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with 1-3/4 inch wide PVC thermal break and weather-tight Dual Barrier tongue-in-groove meeting joints.
a. Panel Thickness: 3 inches (76.2 mm).
b. Exterior Surface: Embossed stucco texture with pinstripes.
c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.
d. End Stiles: 14 or 16 gauge with thermal break to prevent heat/cold transfer.
e. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

f. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
g. Thermal Values: Calculated R-value of 26.
h. Installed U-factor: 0.14 BTU/hr*ft^2*F Provide Test Report Validating Compliance to NFRC 102
i. Air Infiltration: .09 cfm at 15 mph Provide Test Report Validating Compliance to ASTM E-283
j. Sound Transmission Rating: STC 22 Provide Test Report Validating Compliance to ASTM E 90

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

k. High-Usage Package: Provide with optional high-usage package (springs, rollers, bearings, and 11 gauge hinges).
1) 50,000 Cycle
2) 100,000 cycle

**** NOTE TO SPECIFIER ** Select from the following glazing options and delete those not required or delete entirely if glazing is not required. Partial glazing with two or more sections glazed with 1/2 inch insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

l. Partial Glazing of Steel Panels:
1) Standard with black frame:
(a) 1/2 inch (12.5 mm) Insulated.
(b) 1/2 inch Tempered Insulated.
(c) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).
2) Color matched frame: white, brown, almond, taupe.

2. Finish and Color:

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

a. Two coat baked-on polyester:
1) Interior color, white.

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

2) Exterior color, white.
3) Exterior color, brown.
4) Exterior color, almond
5) Exterior color, taupe

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
4. Lock:
a. Interior mounted slide lock.
5. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. PVC retainer and dual durometer PVC bulb seal or optional EPDM bulb seal at bottom section.
b. Exclusive Advanced Performance Jamb seals (optional).
c. Factory installed Flexible Header seal.

6. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
1) 2 inch (51 mm).
2) 3 inch (76 mm).
b. Type:
1) Standard lift.
2) Vertical lift.
3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

7. Manual Operation: Pull rope.
8. Manual Operation: Chain hoist.
9. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to

move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

   1) Push-button operated control stations with open, close, and stop buttons.
   2) Key operated control stations with open, close, and stop buttons.
   3) Push-button and key operated control stations with open, close, and stop buttons.

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

   4) Flush mounting.
   5) Surface mounting.

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

   6) Interior location.
   7) Exterior location.
   8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.
   3) Radio control operation.
   4) Card reader control.
   5) Photocell operation.
   6) Door timer operation.
   7) Commercial light package.
   8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton ThermoMark™ 5150 insulated sectional overhead steel doors are available up to a maximum width of 26 feet 2 inches and a maximum height of 20 feet 1 inch. Edit as required to suit project requirements.**

F. Insulated Steel Sectional Overhead Doors: Wayne Dalton ThermoMark 5150 insulated sectional overhead steel doors. Units shall have the following characteristics:

1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break.
   a. Panel Thickness: 1-3/8 inches (34.92 mm).
   b. Exterior Surface:
      1) Flush with non-repeating wood grain texture.
      2) Raised panel with non-repeating wood grain texture.
   c. Exterior Steel: .015 inch (0.38 mm), hot-dipped galvanized.
   d. Thermal Values: R-value of 12.12; U-value of 0.0825.
   e. Air Infiltration: 0.23 cfm at 15 mph.
   f. Sound transmission class 20 when tested in accordance with ASTM E 413.
   g. Outdoor-indoor transmission class 20 when tested in accordance with ASTM E 1332.
   h. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
      1) Insulated sections tested in accordance with ASTM E 84 and achieve a Flame spread Index of 10 or less, and a Smoke Developed Index of 210 or less.
      2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 734 degrees F, and a minimum Self Ignition temperature of 950 degrees F.
      3) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.
   i. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

      1) 18 gauge.
      2) 16 gauge.
   j. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

      1) Standard cycle spring: 10,000 cycles
      2) High cycle spring: 25,000 cycles.
      3) High cycle spring: 50,000 cycles.
      4) High cycle spring: 75,000 cycles.
      5) High cycle spring: 100,000 cycles.
   k. Pass-Door:
      1) Provide with optional pass door.

**** NOTE TO SPECIFIER ** Select full view glazing or partial glazing from the following paragraphs and edit to select glazing required. Delete the one not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

   l. Full View Aluminum Glazing Sections:
      1) 1/8 inch (3 mm) Double Strength glass.
      2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
      3) 1/8 inch (3 mm) Tempered glass.

4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.
12) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
13) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
14) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

m. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:
1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
4) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Polished wire glass.

n. Colonial Style Partial Glazing of Steel Panels set in 2-piece high-impact polymer frame: (Frames match the color of the door)
1) 1/8 inch (3mm) SSB Glass.
2) 1/2 inch (12.5 mm) Insulated Glass.

2. Finish and Color:

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

a. Two coat baked-on polyester:
1) Interior color, white.

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

2) Exterior color, white.
3) Exterior color, taupe.
4) Exterior color, almond.
5) Exterior color, brown.
6) Exterior color, black.

b. Exterior Bi-Directional Woodgrain Pattern:

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

1) Exterior color, Oak.
2) Exterior color, Dark brown.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
    a. Flexible bulb-type strip at bottom section.
    b. Flexible Jamb seals.
    c. Flexible Header seal.
7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

    a. Size:
        1) 2 inch (51 mm).
        2) 3 inch (76 mm).
    b. Type:
        1) Standard lift.
        2) Vertical lift.
        3) High lift.
        4) Low headroom.
        5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

    c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
    d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: 15 inch radius standard lift with roof pitch less than 2:12; Hi-Lift less than 24 inch; Low headroom track. Special chain hoist assemblies (using a trolley rail) are available for the above track systems. Special chain hoist assemblies using a trolley rail are available for track systems. Consult manufacturer for additional information.**

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

    a. Medium Duty
        1) Model MH – hoist
        2) Model MT – trolley
        3) Model MJ - jackshaft
    b. Standard Duty
        1) Model H – hoist
        2) Model T – trolley
        3) Model J – jackshaft
    c. Heavy Duty
        1) Model GH – hoist
        2) Model GT - trolley
    d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton ThermoMark™ 5155 insulated sectional overhead steel doors are available up to a maximum width of 26 feet 2 inches and a maximum height of 20 feet 1 inch. Edit as required to suit project requirements.**

G. Insulated Steel Sectional Overhead Doors: Wayne Dalton ThermoMark 5155 insulated sectional overhead steel doors. Units shall have the following characteristics:

1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break.
a. Panel Thickness: 1-3/8 inches (34.92 mm).
b. Exterior Surface: Stucco texture and 1/4 inch wide pinstriping.
c. Exterior Steel: .015 inch (0.38 mm), hot-dipped galvanized.
d. Interior: Continuous horizontal steel strips for hinge placement and cut down capability.
e. Thermal Values: R-value of 12.12; U-value of 0.0825.
f. Air Infiltration: 0.23 cfm at 15 mph.
g. Sound transmission class 20 when tested in accordance with ASTM E 413.
h. Outdoor-indoor transmission class 20 when tested in accordance with ASTM E 1332.
i. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.

1) Insulated sections tested in accordance with ASTM E 84 and achieve a Flame spread Index of 10 or less, and a Smoke Developed Index of 210 or less.
2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 734 degrees F, and a minimum Self Ignition temperature of 950 degrees F.
3) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.

j. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

1) 18 gauge.
2) 16 gauge.

k. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select full view glazing or partial glazing from the following paragraphs and edit to select glazing required. Delete the one not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

l. Full View Aluminum Glazing Sections:
1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.
12) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
13) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
14) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

m. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:
1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
4) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Polished wire glass.

n. Colonial Style Partial Glazing of Steel Panels set in 2-piece high-impact polymer frame: (Frames match the color of the door)

1) 1/8 inch (3mm) SSB Glass.
2) 1/2 inch (12.5 mm) Insulated Glass.

2. Finish and Color:
   a. Two coat baked-on polyester:
      1) Interior color, white.

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

      2) Exterior color, white.
      3) Exterior color, taupe.
      4) Exterior color, almond.
      5) Exterior color, brown.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

   a. Interior mounted slide lock.
   b. Interior mounted slide lock with interlock switch for automatic operator.
   c. Keyed lock.
   d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
   a. Flexible bulb-type strip at bottom section.
   b. Flexible Jamb seals.
   c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

   a. Size:
      1) 2 inch (51 mm).
      2) 3 inch (76 mm).
   b. Type:
      1) Standard lift.
      2) Vertical lift.
      3) High lift.
      4) Low headroom.
      5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

   c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
   d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: 15 inch radius standard lift with roof pitch less than 2:12; Hi-Lift less than 24 inch; Low headroom track. Special chain hoist assemblies (using a trolley rail) are available for the above track systems. Special chain hoist assemblies**

using a trolley rail are available for track systems. Consult manufacturer for additional information.

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

   1) Push-button operated control stations with open, close, and stop buttons.
   2) Key operated control stations with open, close, and stop buttons.
   3) Push-button and key operated control stations with open, close, and stop buttons.

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

   4) Flush mounting.
   5) Surface mounting.

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

   6) Interior location.
   7) Exterior location.
   8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.
   3) Radio control operation.
   4) Card reader control.
   5) Photocell operation.

6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton ThermoMark™ 5200 insulated sectional overhead steel doors are available up to a maximum width of 26 feet 2 inches and a maximum height of 20 feet 1 inch. Edit as required to suit project requirements.**

H. Insulated Steel Sectional Overhead Doors: Wayne Dalton ThermoMark 5200 insulated sectional overhead steel doors. Units shall have the following characteristics:

1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break.
   a. Panel Thickness: 1-7/8 inches (47.63 mm).
   b. Exterior Surface:
      1) Flush with non-repeating wood grain texture.
      2) Raised panel with non-repeating wood grain texture.
   c. Exterior Steel: .015 inch (0.38 mm), hot-dipped galvanized.
   d. Thermal Values: R-value of 16.22; U-value of 0.0616.
   e. Air Infiltration: 0.07 cfm at 15 mph.
   f. Sound transmission class 20 when tested in accordance with ASTM E 413.
   g. Outdoor-indoor transmission class 20 when tested in accordance with ASTM E 1332.
   h. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
      1) Insulated sections tested in accordance with ASTM E 84 and achieve a Flame spread Index of 10 or less, and a Smoke Developed Index of 210 or less.
      2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 734 degrees F, and a minimum Self Ignition temperature of 950 degrees F.
      3) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.
   i. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

      1) 18 gauge.
      2) 16 gauge.
   j. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

      1) Standard cycle spring: 10,000 cycles
      2) High cycle spring: 25,000 cycles.
      3) High cycle spring: 50,000 cycles.
      4) High cycle spring: 75,000 cycles.
      5) High cycle spring: 100,000 cycles.
   k. Pass-Door:
      1) Provide with optional pass door.

**** NOTE TO SPECIFIER ** Select full view glazing or partial glazing from the following paragraphs and edit to select glazing required. Delete the one not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

l. Full View Aluminum Glazing Sections:
1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.
12) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
13) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
14) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

m. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:
1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
4) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Polished wire glass.

n. Colonial Style Partial Glazing of Steel Panels set in 2-piece high-impact polymer frame: (Frames match the color of the door)
1) 1/8 inch (3mm) SSB Glass.
2) 1/2 inch (12.5 mm) Insulated Glass.

2. Finish and Color:
a. Two coat baked-on polyester:
1) Interior color, white.

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

2) Exterior color, white.
3) Exterior color, taupe.
4) Exterior color, almond.
5) Exterior color, brown.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).

b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.

d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: 15 inch radius standard lift with roof pitch less than 2:12; Hi-Lift less than 24 inch; Low headroom track. Special chain hoist assemblies (using a trolley rail) are available for the above track systems. Special chain hoist assemblies using a trolley rail are available for track systems. Consult manufacturer for additional information.**

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.

3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:

1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton ThermoMark™ 5255 insulated sectional overhead steel doors are available up to a maximum width of 26 feet 2 inches and a maximum height of 20 feet 1 inch. Edit as required to suit project requirements.**

l. Insulated Steel Sectional Overhead Doors: Wayne Dalton ThermoMark 5255 insulated sectional overhead steel doors. Units shall have the following characteristics:

1. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break.
   a. Panel Thickness: 1-7/8 inches (47.63 mm).
   b. Exterior Surface: Stucco with 1/4 inch wide pinstripes.
   c. Exterior Steel: .022 inch (.56 mm), hot-dipped galvanized.
   d. Thermal Values: R-value of 16.22; U-value of 0.0616.
   e. Air Infiltration: 0.07 cfm at 15 mph.
   f. Sound transmission class 20 when tested in accordance with ASTM E 413.
   g. Outdoor-indoor transmission class 20 when tested in accordance with ASTM E 1332.
   h. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
      1) Insulated sections tested in accordance with ASTM E 84 and achieve a Flame spread Index of 10 or less, and a Smoke Developed Index of 210 or less.
      2) Insulation material tested in accordance with ASTM D 1929 and achieve a minimum Flash Ignition temperature of 734 degrees F, and a minimum Self Ignition temperature of 950 degrees F.

3) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.

i. Ends: Hot-dipped galvanized steel, full height with end caps.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Delete entirely if gauge is to be determined by PERFORMANCE REQUIREMENTS.**

1) 18 gauge.
2) 16 gauge.

j. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

k. Pass-Door:

1) Provide with optional pass door.

**** NOTE TO SPECIFIER ** Select full view glazing or partial glazing from the following paragraphs and edit to select glazing required. Delete the one not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

l. Full View Aluminum Glazing Sections:

1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.
12) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
13) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
14) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

m. Partial Glazing of Steel Panels set in 2-piece high-impact black polymer frame:

1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
4) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Polished wire glass.

n. Colonial Style Partial Glazing of Steel Panels set in 2-piece high-impact polymer frame: (Frames match the color of the door)

1) 1/8 inch (3mm) SSB Glass.
2) 1/2 inch (12.5 mm) Insulated Glass.

2. Finish and Color:

a. Two coat baked-on polyester:

1) Interior color, white.

**** NOTE TO SPECIFIER ** Select one of the following exterior color paragraphs and delete the ones not required.**

2) Exterior color, white.
3) Exterior color, taupe.
4) Exterior color, almond.
5) Exterior color, brown.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:
   a. Flexible bulb-type strip at bottom section.
   b. Flexible Jamb seals.
   c. Flexible Header seal.
7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).
b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manufacturer does not recommend chain hoists or jack shaft operators on the following track applications: 15 inch radius standard lift with roof pitch less than 2:12; Hi-Lift less than 24 inch; Low headroom track. Special chain hoist assemblies (using a trolley rail) are available for the above track systems. Special chain hoist assemblies using a trolley rail are available for track systems. Consult manufacturer for additional information.**

8. Manual Operation: Push-up.
9. Manual Operation: Chain hoist.

10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

   1) Push-button operated control stations with open, close, and stop buttons.
   2) Key operated control stations with open, close, and stop buttons.
   3) Push-button and key operated control stations with open, close, and stop buttons.

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

   4) Flush mounting.
   5) Surface mounting.

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

   6) Interior location.
   7) Exterior location.
   8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.
   3) Radio control operation.
   4) Card reader control.
   5) Photocell operation.
   6) Door timer operation.
   7) Commercial light package.
   8) Explosion and dust ignition proof control wiring.

2.3 STEEL SECTIONAL OVERHEAD DOORS

**** NOTE TO SPECIFIER ** Wayne Dalton 216 Series Steel Doors are available up to a maximum width of 28 feet 2 inches and a maximum height of 18 feet 1 inch. Edit as required to suit project requirements.**

A. Sectional Overhead Steel Doors: Wayne Dalton 216 Series Steel Doors. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly of roll formed steel type with ship lap meeting rails and box shaped 16 gauge stile construction.
   a. Panel Thickness: 2 inches (51 mm).
   b. Exterior Surface: Flush, smooth.
   c. Section Material: 16 gauge, galvanized steel.

**** NOTE TO SPECIFIER ** Select the optional insulation from the following paragraphs and delete if not required.**

   d. Insulation: Insulation held in place with polymer clips. Provides an R-value up to 7.64
      1) 1-9/16 inch expanded polystyrene.

**** NOTE TO SPECIFIER ** Select the optional insulation covering required from the following paragraphs and delete the one not required.**

      2) Insulation covered with vinyl.
      3) Insulation covered with .022 inch minimum embossed pre-painted white steel.
   e. Center and End Stiles: 16 gauge steel.
   f. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

      1) Standard cycle spring: 10,000 cycles
      2) High cycle spring: 25,000 cycles.
      3) High cycle spring: 50,000 cycles.
      4) High cycle spring: 75,000 cycles.
      5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing or full view glazing from the following paragraphs and edit to select glazing required. Delete the those not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

   g. Partial Glazing of Non-Insulated Steel Panels:
      1) 1/8 inch (3 mm) DSB glass.
      2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
      3) 1/8 inch (3 mm) Tempered glass.
      4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
      5) 1/4 inch (6 mm) Wire glass.
      6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
      7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
   h. Partial Glazing of Insulated Steel Panels:
      1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
      2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
      3) 1/4 inch (6 mm) Wire glass.
      4) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
      5) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
   i. Full View Aluminum Glazing Section:
      1) 1/8 inch (3 mm) Double Strength glass.
      2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
      3) 1/8 inch (3 mm) Tempered glass.
      4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.

5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color: Two coat baked-on polyester, white color.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
1) 2 inch (51 mm).
2) 3 inch (76 mm).
b. Type:
1) Standard lift.
2) Vertical lift.
3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to

move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

   1) Push-button operated control stations with open, close, and stop buttons.
   2) Key operated control stations with open, close, and stop buttons.
   3) Push-button and key operated control stations with open, close, and stop buttons.

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

   4) Flush mounting.
   5) Surface mounting.

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

   6) Interior location.
   7) Exterior location.
   8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.
   3) Radio control operation.
   4) Card reader control.
   5) Photocell operation.
   6) Door timer operation.
   7) Commercial light package.
   8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton 220 Series Steel Doors are available up to a maximum width of 30 feet 2 inches and a maximum height of 18 feet 1 inch. Edit as required to suit project requirements.**

B. Sectional Overhead Steel Doors: Wayne Dalton 220 Series Steel Doors. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly of roll formed steel type with ship lap meeting rails and box shaped 20 gauge stile construction.
   a. Panel Thickness: 2 inches (51 mm).
   b. Exterior Surface:

**** NOTE TO SPECIFIER ** Select the exterior surface required from the following paragraphs and delete the one not required.**

      1) Flush.
      2) Pinstriped.
   c. Section Material: 20 gauge, galvanized steel.

**** NOTE TO SPECIFIER ** Select the optional insulation from the following paragraphs and delete if not required.**

   d. Insulation: Insulation held in place with polymer clips. Provides an R-value up to 7.64
      1) 1-9/16 inch expanded polystyrene.

**** NOTE TO SPECIFIER ** Select the optional insulation covering required from the following paragraphs and delete the one not required.**

      2) Insulation covered with vinyl.
      3) Insulation covered with .022 inch minimum embossed pre-painted white steel.
   e. Center and End Stiles:
      1) 16 gauge steel end stiles.

**** NOTE TO SPECIFIER ** Select the Center gauge required (20 gauge is standard) and delete the one not required.**

      2) 20 gauge steel center stiles.
      3) 16 gauge steel center stiles.
   f. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

      1) Standard cycle spring: 10,000 cycles
      2) High cycle spring: 25,000 cycles.
      3) High cycle spring: 50,000 cycles.
      4) High cycle spring: 75,000 cycles.
      5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing or full view glazing from the following paragraphs and edit to select glazing required. Delete the those not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

   g. Partial Glazing of Non-Insulated Steel Panels:
      1) 1/8 inch (3 mm) DSB glass.
      2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
      3) 1/8 inch (3 mm) Tempered glass.
      4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
      5) 1/4 inch (6 mm) Wire glass.
      6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
      7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
   h. Partial Glazing of Insulated Steel Panels:
      1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
      2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
      3) 1/4 inch (6 mm) Wire glass.

4) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
5) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

i. Full View Aluminum Glazing Section:
1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color: Two coat baked-on polyester, white color.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
1) 2 inch (51 mm).
2) 3 inch (76 mm).

b. Type:
1) Standard lift.
2) Vertical lift.
3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.

d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.

3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton 2415 Series Steel Doors are available up to a maximum width of 32 feet 2 inches and a maximum height of 22 feet 1 inch. Edit as required to suit project requirements.**

C. Sectional Overhead Steel Doors: Wayne Dalton 2415 Series Steel Doors. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly of roll formed steel type with ship lap meeting rails and box shaped 20 gauge stile construction.
   a. Panel Thickness: 2 inches (51 mm).
   b. Exterior Surface: Ribbed.
   c. Section Material: 24 gauge, galvanized steel.

**** NOTE TO SPECIFIER ** Select the optional insulation from the following paragraphs and delete if not required.**

   d. Insulation: Insulation held in place with polymer clips. Provides an R-value up to 7.64

**** NOTE TO SPECIFIER ** Select the optional insulation required from the following paragraphs and delete the one not required.**

1) 1-9/16 inch expanded polystyrene.
2) 1-9/16 inch polyurethane.

**** NOTE TO SPECIFIER ** Select the optional insulation covering required from the following paragraphs and delete the one not required.**

3) Insulation covered with vinyl.
4) Insulation covered with .022 inch minimum embossed pre-painted white steel.

   e. Center and End Stiles:

1) "C" shaped 16 gauge steel end stiles.

**** NOTE TO SPECIFIER ** Select the Center gauge required (20 gauge is standard) and delete the one not required.**

2) 20 gauge steel center stiles.
3) 16 gauge steel center stiles.

   f. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing or full view glazing from the following paragraphs and edit to select glazing required. Delete the those not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

   g. Partial Glazing of Non-Insulated Steel Panels:

1) 1/8 inch (3 mm) DSB glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Wire glass.

6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

h. Partial Glazing of Insulated Steel Panels:
1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Wire glass.
4) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
5) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

i. Full View Aluminum Glazing Section:
1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color: Two coat baked-on polyester:

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

a. White color.
b. Brown color.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
1) 2 inch (51 mm).
2) 3 inch (76 mm).

b. Type:
1) Standard lift.
2) Vertical lift.

3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

a. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
b. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft
b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft
c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley
d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton 2411 Series Steel Doors are available up to a maximum width of 20 feet 2 inches and a maximum height of 16 feet 1 inch. Edit as required to suit project requirements.**

D. Sectional Overhead Steel Doors: Wayne Dalton 2411 Series Steel Doors. Units shall have the following characteristics:
1. Door Assembly: Steel door assembly of roll formed steel type with ship lap meeting rails.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: Nominal 24 gauge, galvanized steel.

**** NOTE TO SPECIFIER ** Select the optional insulation from the following paragraphs and delete if not required.**

d. Insulation: Insulation held in place with polymer clips. Provides an R-value up to 7.64

**** NOTE TO SPECIFIER ** Select the optional insulation required from the following paragraphs and delete the one not required.**

1) 1-9/16 inch expanded polystyrene.
2) 1-9/16 inch polyurethane.

**** NOTE TO SPECIFIER ** Select the optional insulation covering required from the following paragraphs and delete the one not required.**

3) Insulation covered with vinyl.
4) Insulation covered with .022 inch minimum embossed pre-painted white steel.

e. Center and End Stiles:
1) "C" shaped 16 gauge steel end stiles.

**** NOTE TO SPECIFIER ** Select the Center gauge required (20 gauge is standard) and delete the one not required.**

2) 20 gauge steel center stiles.
3) 16 gauge steel center stiles.

f. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing or full view glazing from the following paragraphs and edit to select glazing required. Delete the those not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with**

single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.

g. Partial Glazing of Non-Insulated Steel Panels:
   1) 1/8 inch (3 mm) DSB glass.
   2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
   3) 1/8 inch (3 mm) Tempered glass.
   4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
   5) 1/4 inch (6 mm) Wire glass.
   6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

h. Partial Glazing of Insulated Steel Panels:
   1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
   2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
   3) 1/4 inch (6 mm) Wire glass.
   4) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   5) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

i. Full View Aluminum Glazing Section:
   1) 1/8 inch (3 mm) Double Strength glass.
   2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
   3) 1/8 inch (3 mm) Tempered glass.
   4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
   5) 1/4 inch (6 mm) Tempered glass.
   6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
   8) 1/2 inch (12.5 mm) Double Insulating glass.
   9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
   10) 1/4 inch (6 mm) Plate glass.
   11) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color: Two coat baked-on polyester:

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

a. White color.
b. Brown color.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).

b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.

d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

   1) Push-button operated control stations with open, close, and stop buttons.
   2) Key operated control stations with open, close, and stop buttons.

3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton C-20 Series Steel Doors are available up to a maximum width of 28 feet 2 inches and a maximum height of 22 feet 1 inch. Edit as required to suit project requirements.**

E. Sectional Overhead Steel Doors: Wayne Dalton C-20 Series Steel Doors. Units shall have the following characteristics:
1. Door Assembly: Steel door assembly of roll formed steel type with ship lap meeting rails and box shaped 20 gauge stile construction.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: 20 gauge, galvanized steel.

**** NOTE TO SPECIFIER ** Select the optional insulation from the following paragraphs and delete if not required.**

d. Insulation: Insulation held in place with polymer clips. Provides an R-value up to 7.64
1) 1-9/16 inch expanded polystyrene.

**** NOTE TO SPECIFIER ** Select the optional insulation covering required from the following paragraphs and delete the one not required.**

2) Insulation covered with vinyl.
3) Insulation covered with .022 inch minimum embossed pre-painted white steel.

e. Center and End Stiles: 20 gauge steel.
f. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing or full view glazing from the following paragraphs and edit to select glazing required. Delete the those not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with**

single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.

g. Partial Glazing of Non-Insulated Steel Panels:
   1) 1/8 inch (3 mm) DSB glass.
   2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
   3) 1/8 inch (3 mm) Tempered glass.
   4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
   5) 1/4 inch (6 mm) Wire glass.
   6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

h. Partial Glazing of Insulated Steel Panels:
   1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
   2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
   3) 1/4 inch (6 mm) Wire glass.
   4) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   5) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

i. Full View Aluminum Glazing Section:
   1) 1/8 inch (3 mm) Double Strength glass.
   2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
   3) 1/8 inch (3 mm) Tempered glass.
   4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
   5) 1/4 inch (6 mm) Tempered glass.
   6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
   7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
   8) 1/2 inch (12.5 mm) Double Insulating glass.
   9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
   10) 1/4 inch (6 mm) Plate glass.
   11) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color: Two coat baked-on polyester:

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

a. White color.
b. Brown color.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).

b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.

d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

   1) Push-button operated control stations with open, close, and stop buttons.
   2) Key operated control stations with open, close, and stop buttons.

3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton C-24 Series Steel Doors are available up to a maximum width of 30 feet 2 inches and a maximum height of 22 feet 1 inch. Edit as required to suit project requirements.**

F. Sectional Overhead Steel Doors: Wayne Dalton C-24 Series Steel Doors. Units shall have the following characteristics:
1. Door Assembly: Steel door assembly of roll formed steel type with ship lap meeting rails and box shaped 20 gauge stile construction.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: 24 gauge, galvanized steel.

**** NOTE TO SPECIFIER ** Select the optional insulation from the following paragraphs and delete if not required.**

d. Insulation: Insulation held in place with polymer clips. Provides an R-value up to 7.64
1) 1-9/16 inch expanded polystyrene.

**** NOTE TO SPECIFIER ** Select the optional insulation covering required from the following paragraphs and delete the one not required.**

2) Insulation covered with vinyl.
3) Insulation covered with .022 inch minimum embossed pre-painted white steel.

e. Center and End Stiles:
1) "C" shaped 16 gauge steel end stiles.

**** NOTE TO SPECIFIER ** Select the Center gauge required (20 gauge is standard) and delete the one not required.**

2) 20 gauge steel center stiles.
3) 16 gauge steel center stiles.

f. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.

4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing or full view glazing from the following paragraphs and edit to select glazing required. Delete the those not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

g. Partial Glazing of Non-Insulated Steel Panels:
1) 1/8 inch (3 mm) DSB glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Wire glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

h. Partial Glazing of Insulated Steel Panels:
1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Wire glass.
4) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
5) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

i. Full View Aluminum Glazing Section:
1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color: Two coat baked-on polyester:

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

a. White color.
b. Brown color.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).
b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft
b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft
c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley
d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.
e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton C-2400 Series Steel Doors are available up to a maximum width of 20 feet 2 inches and a maximum height of 16 feet 1 inch. Edit as required to suit project requirements.**

G. Sectional Overhead Steel Doors: Wayne Dalton C-2400 Series Steel Doors. Units shall have the following characteristics:
1. Door Assembly: Steel door assembly of roll formed steel type with ship lap meeting rails and box shaped 20 gauge stile construction.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: Nominal 24 gauge, galvanized steel.

**** NOTE TO SPECIFIER ** Select the optional insulation from the following paragraphs and delete if not required.**

d. Insulation: Insulation held in place with polymer clips. Provides an R-value up to 7.64
1) 1-9/16 inch expanded polystyrene.

**** NOTE TO SPECIFIER ** Select the optional insulation covering required from the following paragraphs and delete the one not required.**

2) Insulation covered with vinyl.
3) Insulation covered with .022 inch minimum embossed pre-painted white steel.

e. Center and End Stiles: 20 gauge steel.
f. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.

4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

**** NOTE TO SPECIFIER ** Select partial glazing or full view glazing from the following paragraphs and edit to select glazing required. Delete the those not required or delete entirely if glazing is not required. Full view glazing with two or more sections glazed with single thickness or double thickness insulated glass requires engineering review by the manufacturer. Contact the manufacturer if additional requirements are required.**

g. Partial Glazing of Non-Insulated Steel Panels:
1) 1/8 inch (3 mm) DSB glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Wire glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

h. Partial Glazing of Insulated Steel Panels:
1) 1/2 inch (12.5 mm) Thermolite Insulated DSB Glass
2) 1/2 inch (12.5 mm) Thermolite Insulated Tempered Glass
3) 1/4 inch (6 mm) Wire glass.
4) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
5) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.

i. Full View Aluminum Glazing Section:
1) 1/8 inch (3 mm) Double Strength glass.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Tempered glass.
4) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
5) 1/4 inch (6 mm) Tempered glass.
6) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
7) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
8) 1/2 inch (12.5 mm) Double Insulating glass.
9) 1/2 inch (12.5 mm) Tempered Double Insulating glass.
10) 1/4 inch (6 mm) Plate glass.
11) 1/4 inch (6 mm) Polished wire glass.

2. Finish and Color: Two coat baked-on polyester:

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

a. White color.
b. Brown color.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).
b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft
b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft
c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley
d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.
e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

2.4 GLAZED ALUMINUM SECTIONAL OVERHEAD DOORS

**** NOTE TO SPECIFIER ** Wayne Dalton 451 Series Steel Doors are available up to a maximum width of 16 feet 2 inches and a maximum height of 11 feet 1 inch. Edit as required to suit project requirements.**

A. Glazed Sectional Overhead Doors: Wayne Dalton 451 Series Aluminum Doors. Units shall have the following characteristics:
1. Door Assembly: Stile and rail assembly of aluminum alloy 6063-T6, 1-3/8 inch thick stiles and rails, joined with self tapping screws.
a. Rails: Top and bottom rails with 3-1/2 inches wide, lower intermediate rail 1-3/8 inches, upper rail 1-5/8 inches, minimum wall thickness 0.062 inch.
b. Stiles: Top, bottom, and end stiles are 3-1/2 inches wide, center stile 3 inches wide, minimum wall thickness 0.062 inch.
c. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

d. Glazing:

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

1) 1/8 inch (3 mm) Clear annealed glazing.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.

3) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
4) 1/8 inch (3 mm) Gray annealed glazing.
5) 1/8 inch (3 mm) Bronze annealed glazing.
6) 1/8 inch (3 mm) Clear Tempered glass.
7) 1/8 inch (3 mm) Gray Tempered glass.
8) 1/8 inch (3 mm) Bronze Tempered glass.
9) 1/8 inch (3 mm) Solex Green Tempered glass.
10) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
11) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
12) 1/4 inch (6 mm) Clear Multi-Wall Polycarbonate
13) 1/4 inch (6 mm) White Multi-Wall Polycarbonate
14) 1/4 inch (6 mm) Bronze Multi-Wall Polycarbonate
15) 5/8 inch (16 mm) Clear Multi-Wall Polycarbonate
16) 5/8 inch (16 mm) White Multi-Wall Polycarbonate
17) 5/8 inch (16 mm) Bronze Multi-Wall Polycarbonate

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

2. Finish and Color:
   a. Anodized Finish: Clear anodized.
   b. Anodized Finish: Bronze anodized.
   c. Anodized Finish: Black anodized.
   d. Painted finish: White.
   e. Painted finish: Brown.
   f. Powder Coating Finish: Color as selected by Architect from manufacturer's standard colors.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

   a. Interior mounted slide lock.
   b. Interior mounted slide lock with interlock switch for automatic operator.
   c. Keyed lock.
   d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

   a. Flexible bulb-type strip at bottom section.
   b. Flexible Jamb seals.
   c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

   a. Size:
      1) 2 inch (51 mm).
      2) 3 inch (76 mm).
   b. Type:
      1) Standard lift.
      2) Vertical lift.

3) High lift.
4) Low headroom.
5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft
b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft
c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley
d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton 452 Series Steel Doors are available up to a maximum width of 28 feet 2 inches and a maximum height of 20 feet 1 inch. Edit as required to suit project requirements.**

B. Glazed Sectional Overhead Doors: Wayne Dalton 452 Series Aluminum Doors. Units shall have the following characteristics:
1. Door Assembly: Stile and rail assembly of aluminum alloy 6063-T6, 1-3/8 inch thick stiles and rails, joined with self tapping screws.
a. Rails: Top and bottom rails with 3-1/2 inches wide, lower intermediate rail 1-3/8 inches, upper rail 1-5/8 inches, minimum wall thickness 0.062 inch.

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

1) Provide with polyurethane filled rails and stiles with R-values up to 3.91.
b. Stiles: Top, bottom, and end stiles are 3-1/2 inches wide, center stile 3 inches wide, minimum wall thickness 0.062 inch.
c. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.
d. Glazing:

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

1) 1/8 inch (3 mm) Clear annealed glazing.
2) 1/8 inch (3 mm) Acrylic (Plexiglass) glazing.
3) 1/8 inch (3 mm) Polycarbonate (Lexan) glazing.
4) 1/8 inch (3 mm) Gray annealed glazing.
5) 1/8 inch (3 mm) Bronze annealed glazing.
6) 1/8 inch (3 mm) Clear Tempered glass.
7) 1/8 inch (3 mm) Gray Tempered glass.
8) 1/8 inch (3 mm) Bronze Tempered glass.
9) 1/8 inch (3 mm) Solex Green Tempered glass.
10) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
11) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
12) 1/4 inch (6 mm) Clear Multi-Wall Polycarbonate
13) 1/4 inch (6 mm) White Multi-Wall Polycarbonate

14) 1/4 inch (6 mm) Bronze Multi-Wall Polycarbonate
15) 5/8 inch (16 mm) Clear Multi-Wall Polycarbonate
16) 5/8 inch (16 mm) White Multi-Wall Polycarbonate
17) 5/8 inch (16 mm) Bronze Multi-Wall Polycarbonate

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

2. Finish and Color:
   a. Anodized Finish: Clear anodized.
   b. Anodized Finish: Bronze anodized.
   c. Anodized Finish: Black anodized.
   d. Painted finish: White.
   e. Painted finish: Brown.
   f. Powder Coating Finish: Color as selected by Architect from manufacturer's standard colors.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

   a. Interior mounted slide lock.
   b. Interior mounted slide lock with interlock switch for automatic operator.
   c. Keyed lock.
   d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

   a. Flexible bulb-type strip at bottom section.
   b. Flexible Jamb seals.
   c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

   a. Size:
      1) 2 inch (51 mm).
      2) 3 inch (76 mm).
   b. Type:
      1) Standard lift.
      2) Vertical lift.
      3) High lift.
      4) Low headroom.
      5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

   c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
   d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

   1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
   2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
   3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

   1) Push-button operated control stations with open, close, and stop buttons.
   2) Key operated control stations with open, close, and stop buttons.
   3) Push-button and key operated control stations with open, close, and stop buttons.

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

   4) Flush mounting.
   5) Surface mounting.

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

   6) Interior location.
   7) Exterior location.
   8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.
   3) Radio control operation.
   4) Card reader control.
   5) Photocell operation.

6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

**** NOTE TO SPECIFIER ** Wayne Dalton K-AL Series Steel Doors are available up to a maximum width of 24 feet 2 inches and a maximum height of 18 feet 1 inch. Edit as required to suit project requirements.**

C. Glazed Sectional Overhead Doors: Wayne Dalton K-AL Series Aluminum Doors. Units shall have the following characteristics:

1. Door Assembly: Stile and rail assembly of aluminum alloy 6063-T6, 2 inch thick stiles and rails. Top and intermediate sections have stiles and rails joined with screws. Bottom section are through bolted vertically through the section for extra strength where bottom corner brackets pick up the door.
   a. Rails: Top and bottom rails for doors up to 16 feet 2 inches high are 3 inches wide, Top and bottom rails for doors up to 16 feet 3 inches high and wider are 6 inches wide

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

1) Provide with polyurethane filled rails and stiles with R-values up to 4.25.

   b. Stiles: Center and end stiles are 3 inches wide.
   c. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

   d. Glazing:

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

1) 1/8 inch (3.2 mm) Tempered glass.
2) 1/8 inch (3.2 mm) Clear Lexan glazing.
3) 1/4 inch (6 mm) Tempered glass.
4) 1/4 inch (6 mm) Acrylic glazing.
5) 1/4 inch (6 mm) Wire glass.
6) 1/2 inch (12.5 mm) Double Strength Insulating glass.
7) 1/2 inch (12.5 mm) Low E Insulated glazing.
8) 1/4 inch (6 mm) multi-wall polycarbonate.

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

2. Finish and Color:
   a. Anodized Finish: Clear anodized.
   b. Anodized Finish: Bronze anodized.
   c. Anodized Finish: Black anodized.
   d. Anodized Finish: Bronze light anodized.
   e. Anodized Finish: Bronze medium anodized
   f. Anodized Finish: Bronze dark anodized
   g. Powder Coating Finish: Color as selected by Architect from manufacturer's standard colors.

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

a. Interior mounted slide lock.
b. Interior mounted slide lock with interlock switch for automatic operator.
c. Keyed lock.
d. Keyed lock with interlock switch for automatic operator.

6. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

a. Flexible bulb-type strip at bottom section.
b. Flexible Jamb seals.
c. Flexible Header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

a. Size:
   1) 2 inch (51 mm).
   2) 3 inch (76 mm).
b. Type:
   1) Standard lift.
   2) Vertical lift.
   3) High lift.
   4) Low headroom.
   5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft
b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley

3) Model J – jackshaft

c. Heavy Duty
1) Model GH – hoist
2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
1) Pull switch.
2) Vehicle detector operation.
3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

D. Glazed Sectional Overhead Doors: Wayne Dalton 464 Series Aluminum Doors. Units shall have the following characteristics:

1. Door Assembly: Stile and rail assembly of aluminum alloy 6063-T6, 1-3/8 inch thick stiles and rails, ¼" tempered glass secured with industrial high bond tape
   a. Rails: Top and bottom rails with 3-1/2 inches wide, lower intermediate rail 1-3/8 inches, upper rail 1-5/8 inches, minimum wall thickness 0.062 inch, bottom and lower intermediate rails with glass ledge
   b. Stiles: Top, bottom, and end stiles are 3-1/2 inches wide, center stile 3 inches wide, minimum wall thickness 0.062 inch.
   c. Springs:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. 10,000 cycles are standard.**

1) Standard cycle spring: 10,000 cycles.
2) High cycle spring: 25,000 cycles.
3) High cycle spring: 50,000 cycles.
4) High cycle spring: 75,000 cycles.
5) High cycle spring: 100,000 cycles.

d. Glazing:

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

1) 1/4 inch (6 mm) White Opaque Tempered glass
2) 1/4 inch (6 mm) Black Opaque Tempered glass
3) 1/4 inch (6 mm) Mirrored Gray Tempered glass
4) 1/4 inch (6 mm) Mirrored Bronze Tempered glass
5) 1/4 inch (6 mm) Translucent Black Tempered glass

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

2. Finish and Color:
   a. Anodized Finish: Black anodized
   b. Anodized Finish: Bronze anodized
   c. Powder Coating Finish: White powder coat
   d. Powder Coating Finish: Black powder coat
   e. Powder Coating Finish: Bronze powder coat

**** NOTE TO SPECIFIER ** The following paragraph is optional. Contact the manufacturer for additional information regarding the options available. Include the Design/Performance Requirements in Part 1 of this specification.**

3. Hardware: Black and white powder coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
4. Lock:

**** NOTE TO SPECIFIER ** Select one of the following paragraphs and delete the ones not required. Interior mounted slide lock is standard.**

   a. Interior mounted slide lock.
   b. Interior mounted slide lock with interlock switch for automatic operator.

5. Weatherstripping:

**** NOTE TO SPECIFIER ** Select the seals required from the following paragraphs and delete those not required. Bottom seal is standard, jamb seals and head seals are optional.**

   a. Flexible bulb-type strip at bottom section.
   b. Flexible Jamb seals.
   c. Flexible Header seal.

6. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

**** NOTE TO SPECIFIER ** Edit the following track size and type paragraphs as required and delete the ones not required.**

   a. Size:
      1) 2 inch (51 mm).
      2) 3 inch (76 mm).
   b. Type:
      1) Standard lift.
      2) Vertical lift.
      3) High lift.
      4) Low headroom.
      5) Follow roof slope.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs as required and delete the one not required. Horizontal track applies to standard lift, high lift, low headroom and follow-the-roof designs only.**

   c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.

d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.

**** NOTE TO SPECIFIER ** Select one of the following Operation paragraphs and delete the ones not required. Manual pull rope is standard.**

7. Manual Operation: Pull rope.
8. Manual Operation: Chain hoist.
9. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

**** NOTE TO SPECIFIER ** Select one of the following Duty Type and Model paragraphs and delete those not required.**

a. Medium Duty
   1) Model MH – hoist
   2) Model MT – trolley
   3) Model MJ - jackshaft

b. Standard Duty
   1) Model H – hoist
   2) Model T – trolley
   3) Model J – jackshaft

c. Heavy Duty
   1) Model GH – hoist
   2) Model GT - trolley

d. Entrapment Protection: Required for momentary contact, includes radio control operation.

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

1) Pneumatic sensing edge up to 18 feet (5.5 m) wide. Constant contact only complying with UL 325/2010.
2) Electric sensing edge monitored to meet UL 325/2010 equal to Miller Edge.
3) Photoelectric sensors monitored to meet UL 325/2010.

e. Operator Controls:

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

1) Push-button operated control stations with open, close, and stop buttons.
2) Key operated control stations with open, close, and stop buttons.
3) Push-button and key operated control stations with open, close, and stop buttons.

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

4) Flush mounting.
5) Surface mounting.

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

6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

**** NOTE TO SPECIFIER ** Select special operation features from the following paragraphs and delete those not required. Delete entirely if not required.**

f. Special Operation:
   1) Pull switch.
   2) Vehicle detector operation.

3) Radio control operation.
4) Card reader control.
5) Photocell operation.
6) Door timer operation.
7) Commercial light package.
8) Explosion and dust ignition proof control wiring.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until openings have been properly prepared.

B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

C. Verify electric power is available and of correct characteristics.

D. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.

B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.

C. Anchor assembly to wall construction and building framing without distortion or stress.

D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

E. Fit and align door assembly including hardware.

**** NOTE TO SPECIFIER ** Select one of the following paragraph for power operated doors. Delete if not required.**

F. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

G. Instruct Owner’s personnel in proper operating procedures and maintenance schedule.

3.4 ADJUSTING

A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion

B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Clean doors, frames and glass using non-abrasive materials and methods recommended by manufacturer.

B. Remove labels and visible markings.

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

B. Protect installed products until completion of project.

END OF SECTION