The Genuine. The Original.

SECTION 08360 [08 36 00]
SECTIONAL OVERHEAD DOORS

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PART 1 GENERAL

1.1 SECTION INCLUDES

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

A. Section 03300 - Cast-In-Place Concrete.

B. Section 04810 – Concrete Unit Masonry.

C. Section 05500 - Metal Fabrications.

D. Section 06114 – Wood Framing.

E. Section 07900 - Joint Sealants.

F. Section 08710 - Door Hardware.

G. Section 09900 - Paints and Coatings.

H. Section 11150 - Parking Control Equipment.

I. Section 16130 - Raceway and Boxes.

J. Section 16150 - Common Work Results for Electrical.

1.3 REFERENCES

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

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. 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.

B. 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

A. Warranty: Manufacturer's limited door warranty for 10 year against delamination of polyurethane foam from steel face and all other components for 1 year.

B. Warranty: Manufacturer's limited door and operators System warranty for 10 year against delamination of polyurethane foam from steel face and all other components for 3 years or 20,000 cycles, whichever comes first.

C. Warranty: Manufacturer's limited door warranty for 8 year against delamination of polyurethane foam from steel face and all other components for 1 year.

D. Warranty: Manufacturer's limited door and operators System warranty for 8 year against delamination of polyurethane foam from steel face and all other components for 3 years or 20,000 cycles, whichever comes first.

E. Warranty: Manufacturer's limited door and operators System warranty for 10 years against delamination of polystyrene foam from steel face.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Overhead Door Corporation, 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com.

B. Substitutions: Not permitted.

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

2.2 INSULATED SECTIONAL OVERHEAD DOORS

A. Insulated Steel Sectional Overhead Doors: Thermacore AP Model 850 Insulated Steel Doors by Overhead Door™ Brand. 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 patents pending weather-tight Dual Barrier tongue-in-groove meeting joints.
      a. Panel Thickness: 3 inches (76.2 mm).
      b. Exterior Surface: Microgroove, textured.
      c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.
      d. End Stiles: 18 gauge single end stiles provided on doors up to and including 16 feet 2 inches wide; 16 gauge double end stiles provided on doors greater than 16 feet 2 inches wide up to and including 26 feet 2 inches; 14 gauge double end stiles provided on doors greater than 26

feet 2 inches wide. Provide 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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
   1) Standard cycle spring: 10,000 cycles.
   2) High cycle spring: 50,000 cycles.
   3) High cycle spring: 100,000 cycles.

f. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.

g. Thermal Values: Tested installed assembly U-factor of 0.07 Btu/hr/SF degrees F; calculated section R-value of 26.0.

h. Air Infiltration: .09 cfm at 15 mph.

i. Sound Transmission Rating: STC 22

j. High-Usage Package: Provide with optional high-usage package.

k. 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.
      (a) 1/2 inch (12.7 mm) Tempered Insulated
      (b) 1/2 inch (12.7 mm) Insulated.

2. Finish and Color:
   a. Two coat baked-on polyester:
      1) Interior color, white.
      2) Exterior color, white.
      3) Exterior color, brown.
      4) Exterior color, almond
      5) Exterior color, taupe

3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.

5. Lock:
   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. PVC retainer with dual durometer PVC bulb seal.
   b. Factory installed Flexible Header seal.
   c. Optional EPDM bulb seal. Recommended for extreme weather conditions.
   d. Optional Exclusive Advanced Performance Jamb seals recommended for extreme weather conditions.

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

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
        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.
        3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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.

B. Insulated Steel Sectional Overhead Doors: Model 592 Thermacore Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
    1. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and weather-tight ship-lap design meeting joints.
        a. Panel Thickness: 2 inches (51 mm).
        b. Exterior Surface: Ribbed, textured.
        c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.
        d. End Stiles: 16 gauge with thermal break.
        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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
            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: Tested installed assembly U-factor of 0.10 Btu/hr/SF degrees F; calculated section R-value of 17.50.

h. Air Infiltration: 0.08 cfm at 15 mph; 0.08 cfm at 25 mph.
i. Pass-Door:
    1) Provide with optional pass door.
j. High-Usage Package: Provide with optional high-usage package.
k. Partial Glazing of Steel Panels:
    1) 1/8 inch (3 mm) Acrylic glazing.
    2) 1/4 inch (6 mm) Acrylic glazing.
    3) 1/8 inch (3 mm) Clear Lexan glazing.
    4) 1/4 inch (6 mm) Clear Lexan glazing.
    5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
    6) 1/8 inch (3 mm) Tempered glass.
    7) 1/4 inch (6 mm) Tempered glass.
    8) 1/2 inch (12.5 mm) Tempered Insulating glass.
    9) 1/4 inch (6 mm) Wire glass.
    10) 1/8 inch (3 mm) Double Strength glass.
    11) 1/2 inch (12.5 mm) Double Strength Insulating glass.
    12) 1/8 inch (3 mm) Low E glazing.
    13) 1/4 inch (6 mm) Low E glazing.
    14) 1/2 inch (12.5 mm) Low E Insulated glazing.
    15) 1/8 inch (3 mm) Solar Bronze glazing.
    16) 1/4 inch (6 mm) Solar Bronze glazing.
    17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
    18) 1/8 inch (3 mm) Obscure glazing.
    19) 1/4 inch (6 mm) Obscure glazing.
    20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
    21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
    22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
    23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).
l. Full Glazed Aluminum Sash Panels:
    1) 1/8 inch (3 mm) Acrylic glazing.
    2) 1/4 inch (6 mm) Acrylic glazing.
    3) 1/8 inch (3 mm) Clear Lexan glazing.
    4) 1/4 inch (6 mm) Clear Lexan glazing.
    5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
    6) 1/8 inch (3 mm) Tempered glass.
    7) 1/4 inch (6 mm) Tempered glass.
    8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
    9) 1/4 inch (6 mm) Wire glass.
    10) 1/8 inch (3 mm) Double Strength glass.
    11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
    12) 1/8 inch (3 mm) Low E glazing.
    13) 1/4 inch (6 mm) Low E glazing.
    14) 1/2 inch (12.5 mm) Low E Insulated glazing.
    15) 1/8 inch (3 mm) Solar Bronze glazing.
    16) 1/4 inch (6 mm) Solar Bronze glazing.
    17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
    18) 1/8 inch (3 mm) Obscure glazing.
    19) 1/4 inch (6 mm) Obscure glazing.
    20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
    21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
    22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
    23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color:
    a. Two coat baked-on polyester:
        1) Interior color, white.
        2) Exterior color, white.
        3) Exterior color, brown.
        4) Exterior color, tan.
        5) Exterior color, gray.
    b. Baked-on Trinar polyvinylidene fluoride high performance coating:
        1) Exterior color, white.
        2) Exterior color, brown.
        3) Exterior color, beige.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
    a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
    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.
    e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
6. Weatherstripping:
    a. EPDM 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.
    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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
        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.
        3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
        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.

4) Flush mounting.
5) Surface mounting.
6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

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.

C. Insulated Steel Sectional Overhead Doors: Model 599 Thermacore Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:

1. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and weather-tight ship-lap design meeting joints.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Flush, textured.
c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.
d. End Stiles: 16 gauge with thermal break.
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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
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: Tested installed assembly U-factor of 0.10 Btu/hr/SF degrees F; calculated section R-value of 17.50.
h. Air Infiltration: 0.08 cfm at 15 mph; 0.08 cfm at 25 mph.
i. Pass-Door: Provide with optional pass door.
j. High-Usage Package: Provide with optional high-usage package.
k. Partial Glazing of Steel Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.

18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

l. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color: Two coat baked-on polyester.
a. Interior color, white.
b. Exterior color, white.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
6. Weatherstripping:
a. EPDM 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.
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.

8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
        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.
        3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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.

D. Insulated Steel Sectional Overhead Doors: Model 591 Thermacore Insulated Steel Doors by Overhead Door™ Brand. Units shall have the following characteristics:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and weather-tight ship-lap design meeting joints.
    a. Panel Thickness: 1-5/8 inches (41 mm).
    b. Exterior Surface: Ribbed, textured.
    c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.
    d. End Stiles: 16 gauge.
    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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
        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: Tested installed assembly U-factor of 0.13 Btu/hr/SF degrees F; calculated section R-value of 14.86.

h. Air Infiltration: 0.08 cfm at 15 mph; 0.08 cfm at 25 mph.

i. Pass-Door: Provide with optional pass door.

j. High-Usage Package: Provide with optional high-usage package.

k. Partial Glazing of Steel Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

l. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).

22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color:
   a. Two coat baked-on polyester:
      1) Interior color, white.
      2) Exterior color, white.
      3) Exterior color, brown.
      4) Exterior color, tan.
      5) Exterior color, gray.
   b. Baked-on Trinar polyvinylidene fluoride high performance coating:
      1) Exterior color, white.
      2) Exterior color, brown.
      3) Exterior color, beige.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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.
   e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
6. Weatherstripping:
   a. EPDM 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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:

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.
4) Flush mounting.
5) Surface mounting.
6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

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.

E. Insulated Steel Sectional Overhead Doors: Model 596 Thermacore Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:

1. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and weather-tight ship-lap design meeting joints.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Flush, textured.
c. Exterior Steel: 20 gauge, galvanized.
d. End Stiles: 16 gauge with thermal break.
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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
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: Tested installed assembly U-factor of 0.10 Btu/hr/SF degrees F; calculated section R-value of 17.40.
h. Air Infiltration: 0.08 cfm at 15 mph; 0.08 cfm at 25 mph.
i. Sound Transmission: Class 26.
j. Pass-Door: Provide with optional pass door.
k. High-Usage Package: Provide with optional high-usage package.
l. Partial Glazing of Steel Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.

12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

m. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color:
a. Two coat baked-on polyester:
1) Interior color, white.
2) Exterior color, white.
3) Exterior color, brown.
4) Exterior color, tan.
5) Exterior color, gray.

3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of _____ lb/sq ft (_____kPa).

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.

5. Lock:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.

6. Weatherstripping:
   a. EPDM 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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

F. Insulated Steel Sectional Overhead Doors: Model 594 Thermacore Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
   1. Door Assembly: Metal/foam/metal sandwich panel construction, with hot melt thermal break and weather-tight ship-lap design meeting joints.
      a. Panel Thickness: 1-3/8 inches (35 mm).

b. Exterior Surface: Raised panel, textured woodgrain surface.
c. Exterior Steel: .012 inch (.30 mm), hot-dip galvanized.
d. End Stiles: 20 gauge.
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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
    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: Tested installed assembly U-factor of 0.15 Btu/hr/SF degrees F; calculated section R-value of 12.76.
h. Air Infiltration: 0.08 cfm at 15 mph; 0.15 cfm at 25 mph.
i. High-Usage Package: Provide with optional high-usage package.
j. Partial Glazing of Steel Panels:
    1) 1/8 inch (3 mm) Acrylic glazing.
    2) 1/4 inch (6 mm) Acrylic glazing.
    3) 1/8 inch (3 mm) Clear Lexan glazing.
    4) 1/4 inch (6 mm) Clear Lexan glazing.
    5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
    6) 1/8 inch (3 mm) Tempered glass.
    7) 1/4 inch (6 mm) Tempered glass.
    8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
    9) 1/4 inch (6 mm) Wire glass.
    10) 1/8 inch (3 mm) Double Strength glass.
    11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
    12) 1/8 inch (3 mm) Low E glazing.
    13) 1/4 inch (6 mm) Low E glazing.
    14) 1/2 inch (12.5 mm) Low E Insulated glazing.
    15) 1/8 inch (3 mm) Solar Bronze glazing.
    16) 1/4 inch (6 mm) Solar Bronze glazing.
    17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
    18) 1/8 inch (3 mm) Obscure glazing.
    19) 1/4 inch (6 mm) Obscure glazing.
    20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
    21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
    22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
    23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).
k. Full Glazed Aluminum Sash Panels:
    1) 1/8 inch (3 mm) Acrylic glazing.
    2) 1/4 inch (6 mm) Acrylic glazing.
    3) 1/8 inch (3 mm) Clear Lexan glazing.
    4) 1/4 inch (6 mm) Clear Lexan glazing.
    5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
    6) 1/8 inch (3 mm) Tempered glass.
    7) 1/4 inch (6 mm) Tempered glass.
    8) 1/2 inch (12.5 mm) Tempered Insulating Glass.
    9) 1/4 inch (6 mm) Wire glass.
    10) 1/8 inch (3 mm) Double Strength glass.
    11) 1/2 inch (12.5 mm) Double Strength Insulating Glass.
    12) 1/8 inch (3 mm) Low E glazing.

13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color:
   a. Two coat baked-on polyester:
      1) Interior color, white.
      2) Exterior color, white.
      3) Exterior color, brown.
      4) Exterior color, Desert Tan.
      5) Exterior color, Sandstone.
      6) Exterior color, Almond.
      7) Exterior color, Hunter Green.
      8) Exterior color, Terra Bronze.
   b. Baked-on Trinar polyvinylidene fluoride high performance coating:
      1) Exterior color, white.
      2) Exterior color, brown.
      3) Exterior color, beige.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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. EPDM 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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.

a. Entrapment Protection: Required for momentary contact, includes radio control operation.
    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.
    3) Photoelectric sensors monitored to meet UL 325/2010.
b. Operator Controls:
    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.
    4) Flush mounting.
    5) Surface mounting.
    6) Interior location.
    7) Exterior location.
    8) Both interior and exterior location.
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.

G. Insulated Steel Sectional Overhead Doors: Model 593 Thermacore Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with hot melt thermal break and weather-tight ship-lap design meeting joints.
    a. Panel Thickness: 1-3/8 inches (35 mm).
    b. Exterior Surface: Ribbed, textured.
    c. Exterior Steel: .015 inch (.38 mm), hot-dip galvanized.
    d. End Stiles: 20 gauge.
    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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
        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: Tested installed assembly U-factor of 0.15 Btu/hr/SF degrees F; calculated section R-value of 12.76.
    h. Air Infiltration: 0.08 cfm at 15 mph; 0.15 cfm at 25 mph.
    i. High-Usage Package: Provide with optional high-usage package.
    j. Partial Glazing of Steel Panels:
        1) 1/8 inch (3 mm) Acrylic glazing.
        2) 1/4 inch (6 mm) Acrylic glazing.
        3) 1/8 inch (3 mm) Clear Lexan glazing.
        4) 1/4 inch (6 mm) Clear Lexan glazing.

5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

k. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color:
a. Two coat baked-on polyester:
1) Interior color, white.
2) Exterior color, white.
3) Exterior color, brown.
4) Exterior color, tan.
5) Exterior color, gray.

b. Baked-on Trinar polyvinylidene fluoride high performance coating:
1) Exterior color, white.

2) Exterior color, brown.
3) Exterior color, beige.

3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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. EPDM 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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

H. Insulated Steel Sectional Overhead Doors: Model 598 Thermacore Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with hot melt thermal break and weather-tight ship-lap design meeting joints.
a. Panel Thickness: 1 inch (25.4 mm).
b. Exterior Surface: Ribbed, textured.
c. Exterior Steel: .012 inch (.30 mm), hot-dip galvanized.
d. End Stiles: 20 gauge.
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 diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
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: Tested installed assembly U-factor of 0.20 Btu/hr/SF degrees F; calculated section R-value of 9.31.
h. Air Infiltration: 0.24 cfm at 15 mph; 0.46 cfm at 25 mph.
i. High-Usage Package: Provide with optional high-usage package.
j. Partial Glazing of Steel Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).
k. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.

4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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. EPDM 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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.

a. Entrapment Protection: Required for momentary contact, includes radio control operation.
    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.
    3) Photoelectric sensors monitored to meet UL 325/2010.
b. Operator Controls:
    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.
    4) Flush mounting.
    5) Surface mounting.
    6) Interior location.
    7) Exterior location.
    8) Both interior and exterior location.
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.

I. Insulated Steel Sectional Overhead Doors: Model 515 Thermacore Wind Load Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with hot melt thermal break.
    a. Panel Thickness: 1-3/8 inches (34.92 mm).
    b. Exterior Surface:
        1) Microgroove, textured.
        2) Flush with non-repeating wood grain texture.
        3) Raised panel with non-repeating wood grain texture.
    c. Exterior Steel: .015 inch (0.38 mm), hot-dipped galvanized.
    d. Ends: Hot-dipped galvanized steel, full height with end caps.
        1) 18 gauge.
        2) 16 gauge.
    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 5 to 1 safety factor.
        1) High cycle spring: 25,000 cycles.
        2) High cycle spring: 50,000 cycles.
        3) High cycle spring: 100,000 cycles.
    f. Thermal Values: Tested installed assembly U-factor of 0.15 Btu/hr/SF degrees F; calculated section R-value of 12.12.
    g. Air Infiltration: 0.23 cfm at 15 mph.
    h. Sound transmission class 20 when tested in accordance with ASTM E 413.
    i. Outdoor-indoor transmission class 20 when tested in accordance with ASTM E 1332.
    j. 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.

k. Partial Glazing of Steel Panels:
1) Thermolite double insulated SSB set in 2-piece high-impact polymer frame.
2) Tempered Thermolite.
3) StyleLine Lite Colonial SSB.

l. Single Panel Lite:
1) 1/4 inch (6 mm) Tempered glass.
2) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
3) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
4) 1/4 inch (6 mm) Polished wire glass.

m. Colonial Style SSB with High Impact Polymer Frame:

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

3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Provide to meet Florida Building Code Product Approval #FL 16798 Large Missile-Impact.
b. Provide to meet Florida Building Code Product Approval #FL 16798 Non-Impact.
c. Provide to meet Texas Department of Insurance Product Evaluation TDI GDR-98 Large Missile-Impact.
d. Provide to meet Texas Department of Insurance Product Evaluation TDI GDR-98 Non-Impact.
e. Provide to meet Miami-Dade NOA 14-0204.08 Large Missile-Impact.
f. Provide to meet Miami-Dade NOA 14-0204.07 Large Missile-Impact.

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.

5. Lock:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.

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.
    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.
    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.
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.
    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.
        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:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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.

J. Insulated Steel Sectional Overhead Doors: Model 525 Thermacore Wind Load Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with hot melt thermal break.
a. Panel Thickness: 1-7/8 inches (47.63 mm).
b. Exterior Surface:
1) Microgroove, textured.
2) Flush with non-repeating wood grain texture.
3) Raised panel with non-repeating wood grain texture.
c. Exterior Steel: .015 inch (0.38 mm), hot-dipped galvanized.
d. Ends: Hot-dipped galvanized steel, full height with end caps.
1) 18 gauge.
2) 16 gauge.
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 5 to 1 safety factor.
1) High cycle spring: 25,000 cycles.
2) High cycle spring: 50,000 cycles.
3) High cycle spring: 100,000 cycles.
f. Thermal Values: Tested installed assembly U-factor of 0.12 Btu/hr/SF degrees F; calculated section R-value of 16.22.
g. Air Infiltration: 0.07 cfm at 15 mph.
h. Sound transmission class 20 when tested in accordance with ASTM E 413.
i. Outdoor-indoor transmission class 20 when tested in accordance with ASTM E 1332.
j. 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.
k. Partial Glazing of Steel Panels:
1) Thermolite double insulated SSB set in 2-piece high-impact polymer frame.
2) Tempered Thermolite.
3) StyleLine Lite Colonial SSB.
l. Single Panel Lite:
1) 1/4 inch (6 mm) Tempered glass.
2) 1/4 inch (6 mm) Acrylic (Plexiglass) glazing.
3) 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
4) 1/4 inch (6 mm) Polished wire glass.
m. Colonial Style SSB with High Impact Polymer Frame:
2. Finish and Color:
a. Two coat baked-on polyester:
1) Interior color, white.

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

3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
   b. Provide to meet Florida Building Code Product Approval #FL 16798 Large Missile-Impact.
   c. Provide to meet Florida Building Code Product Approval #FL 16798 Non-Impact.
   d. Provide to meet Texas Department of Insurance Product Evaluation TDI GDR-98 Large Missile-Impact.
   e. Provide to meet Texas Department of Insurance Product Evaluation TDI GDR-98 Non-Impact.
   f. Provide to meet Miami-Dade NOA 14-0204.08 Large Missile-Impact.
   g. Provide to meet Miami-Dade NOA 14-0204.07 Large Missile-Impact.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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.
   e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
   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.
   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.
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.
    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.
    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:
    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.
    4) Flush mounting.
    5) Surface mounting.
    6) Interior location.
    7) Exterior location.
    8) Both interior and exterior location.
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.

K. Insulated Steel Sectional Overhead Doors: Model 418 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Insulated steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
    a. Panel Thickness: 2 inches (51 mm).
    b. Exterior Surface: Flush.
    c. Exterior Steel: 16 gauge, hot-dip galvanized.
    d. Back Cover:
        1) 26 gauge steel.
        2) Poly-Backed.
        3) High Impact Polystyrene Back cover.
    e. Center and End Stiles: 16 gauge steel.
    f. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
        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.

g. Insulation: Polystyrene.
h. Thermal Values:
    1) Polystyrene – Calculated section R-value of 7.35.
i. Partial Glazing of Steel Panels:
    1) Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
    2) Insulated tempered glass, 24 inch by 7 inch (610 mm by 178 mm) window.
j. Full Glazed Aluminum Sash Panels:
    1) 1/8 inch (3 mm) Acrylic glazing.
    2) 1/4 inch (6 mm) Acrylic glazing.
    3) 1/8 inch (3 mm) Polycarbonate glazing.
    4) 1/4 inch (6 mm) Polycarbonate glazing.
    5) 1/2 inch (12.5 mm) Polycarbonate glazing.
    6) 1/8 inch (3 mm) Tempered Glass.
    7) 1/4 inch (6 mm) Tempered Glass.
    8) 1/2 inch (12.5 mm) Tempered Glass.
    9) 1/4 inch (6 mm) Wire Glass.
    10) 1/2 inch (12.5 mm) Insulating Glass.
    11) 1/8 inch (3 mm) Double strength glass.

2. Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
    a. Design pressure of _____ lb/sq ft (_____kPa).
    b. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
    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.
    e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
    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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.

a. Entrapment Protection: Required for momentary contact, includes radio control operation.
    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.
    3) Photoelectric sensors monitored to meet UL 325/2010.
b. Operator Controls:
    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.
    4) Flush mounting.
    5) Surface mounting.
    6) Interior location.
    7) Exterior location.
    8) Both interior and exterior location.
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.

L. Insulated Steel Sectional Overhead Doors: Model 422 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Insulated steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
    a. Panel Thickness: 2 inches (51 mm).
    b. Exterior Surface: Ribbed.
    c. Exterior Steel: 20 gauge, hot-dip galvanized.
    d. Back Cover:
        1) 26 gauge steel.
        2) Poly-Backed.
        3) High Impact Polystyrene Back cover.
    e. Center and End Stiles: 16 gauge steel.
    f. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
        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.
    g. Insulation: Polystyrene.
    h. Thermal Values:
        1) Polystyrene – Calculated section R-value of 7.35.
    i. Partial Glazing of Steel Panels:
        1) Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.

2) Insulated tempered glass, 24 inch by 7 inch (610 mm by 178 mm) window.

j. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Polycarbonate glazing.
4) 1/4 inch (6 mm) Polycarbonate glazing.
5) 1/2 inch (12.5 mm) Polycarbonate glazing.
6) 1/8 inch (3 mm) Tempered Glass.
7) 1/4 inch (6 mm) Tempered Glass.
8) 1/2 inch (12.5 mm) Tempered Glass.
9) 1/4 inch (6 mm) Wire Glass.
10) 1/2 inch (12.5 mm) Insulating Glass.
11) 1/8 inch (3 mm) Double strength glass.

2. Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of _____ lb/sq ft (_____kPa).
b. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
a. Entrapment Protection: Required for momentary contact, includes radio control operation.
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.

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

b. Operator Controls:
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.
4) Flush mounting.
5) Surface mounting.
6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

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.

M. Insulated Steel Sectional Overhead Doors: Model 426 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:

1. Door Assembly: Insulated steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Exterior Steel: 24 gauge, hot-dip galvanized.
d. Back Cover:
1) 26 gauge steel.
2) Poly-Backed.
3) High Impact Polystyrene Back cover.
e. Center and End Stiles: 16 gauge steel.
f. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
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.
g. Insulation: Polystyrene.
h. Thermal Values:
1) Polystyrene – Calculated section R-value of 7.35.
i. Partial Glazing of Steel Panels:
1) Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
j. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Polycarbonate glazing.
4) 1/4 inch (6 mm) Polycarbonate glazing.
5) 1/2 inch (12.5 mm) Polycarbonate glazing.
6) 1/8 inch (3 mm) Tempered Glass.

7) 1/4 inch (6 mm) Tempered Glass.
8) 1/2 inch (12.5 mm) Tempered Glass.
9) 1/4 inch (6 mm) Wire Glass.
10) 1/2 inch (12.5 mm) Insulating Glass.
11) 1/8 inch (3 mm) Double strength glass.

2. Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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.
   e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.

8) Both interior and exterior location.

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.

N. Insulated Steel Sectional Overhead Doors: Model 432 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Insulated steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Exterior Steel: Nominal 24 gauge, hot-dip galvanized.
d. Back Cover:
1) 26 gauge steel.
2) Poly-Backed.
3) High Impact Polystyrene Back cover.
e. Center and End Stiles: 16 gauge steel.
f. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
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.
g. Insulation: Polystyrene.
h. Thermal Values:
1) Polystyrene – Calculated section R-value of 7.35.
i. Partial Glazing of Steel Panels:
1) Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
j. Full Glazed Aluminum Sash Panels:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Polycarbonate glazing.
4) 1/4 inch (6 mm) Polycarbonate glazing.
5) 1/2 inch (12.5 mm) Polycarbonate glazing.
6) 1/8 inch (3 mm) Tempered Glass.
7) 1/4 inch (6 mm) Tempered Glass.
8) 1/2 inch (12.5 mm) Tempered Glass.
9) 1/4 inch (6 mm) Wire Glass.
10) 1/2 inch (12.5 mm) Insulating Glass.
11) 1/8 inch (3 mm) Double strength glass.
2. Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of _____ lb/sq ft (_____kPa).

b. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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.
   e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

O. Insulated Steel Sectional Overhead Doors: Model 470 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Rigid steel construction; fully insulated on the inside face with continuous steel backing on the inside face. Fabricated with steel end stiles and tongue and groove sections.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Exterior Steel: 26 gauge, hot-dipped galvanized with an embossed simulated wood grain texture.
d. Interior Steel: 29 gauge, hot-dipped galvanized
e. Springs:
1) 10,000 cycles.
2) 25,000 cycles.
3) 50,000 cycles.
4) 75,000 cycles.
5) 100,000 cycles.
f. Insulation: Polystyrene.
g. Thermal Values: Tested installed assembly U-factor of 0.23 Btu/hr/SF degrees F; calculated section R-value of 9.83.
h. Partial Glazing of Steel Panels:
1) 19 inch by 12 inch window.
(a) DSB
(b) Tempered Glass
(c) Clear Lexan
(d) Solar Bronze
(e) Obscure
2) 42 inch by 13 inch window.
(a) DSB
2. Finish and Color: Two coat baked-on polyester. Color as follows:
a. White
b. Almond
c. Brown
d. Sandstone
e. Desert Tan
3. Wind load 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:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.

10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
        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.
        3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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.

2.3 STEEL SECTIONAL OVERHEAD DOORS

A. Sectional Overhead Steel Doors: Model 401 Sectional Steel Doors by Overhead Door™ Brand. Units shall have the following characteristics:
    1. Door Assembly: Steel door assembly of roll formed steel type with Tongue and Groove meeting rails and C-shaped stile construction.
        a. Panel Thickness: 2 inches (51 mm).
        b. Exterior Surface: Ribbed.
        c. Section Material: 20 gauge, galvanized steel.
        d. Center and End Stiles: 16 gauge steel.
        e. Springs:
            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. 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.
        g. 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.

h. 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:
a. White color.
3. Wind load 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:
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.
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.
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.
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.
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.
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:
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.
4) Flush mounting.
5) Surface mounting.
6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

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.

B. Sectional Overhead Steel Doors: Model 402 Sectional Steel Doors by Overhead Door™ Brand. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly of roll formed steel type with Tongue and Groove meeting rails and C-shaped stile construction.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: 20 gauge, galvanized steel.
d. Insulation: Insulation held in place with polymer clips. Provides a calculated section R-value up to 7.64.
1) 1-5/8 inch expanded polystyrene.
2) Insulation covered with vinyl backer.
3) Insulation covered with 30 gauge embossed pre-painted white steel.
e. Center and End Stiles:16- gauge steel.
f. Springs:
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.

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:
   a. White color.
3. Wind load 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:
   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.
   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.
   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.

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.
    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.
        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:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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.

C. Sectional Overhead Steel Doors by Overhead Door™ Brand: Model 403 Sectional Steel Doors. Units shall have the following characteristics:
    1. Door Assembly: Steel door assembly of roll formed steel type with tongue and groove meeting rails C-Shaped stile construction.
        a. Panel Thickness: 2 inches (51 mm).
        b. Exterior Surface: Ribbed.
        c. Section Material: 24 gauge, galvanized steel.
        d. Center and End Stiles:

1) "C" shaped 16 gauge steel end stiles.
2) 20 gauge steel center stiles.
3) 16 gauge steel center stiles.

e. Springs:
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. 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.

g. 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.

h. 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:
a. White color.
b. Brown color.

3. Wind load 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:
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.
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.
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.

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.
    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.
        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:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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. Sectional Overhead Steel Doors by Overhead Door™ Brand. Model 404 Sectional Steel Doors. Units shall have the following characteristics:
   1. Door Assembly: Steel door assembly of roll formed steel type with tongue and groove meeting rails C-Shaped stile construction.
      a. Panel Thickness: 2 inches (51 mm).
      b. Exterior Surface: Ribbed.
      c. Section Material: 24 gauge, galvanized steel.
      d. Insulation: Insulation held in place with polymer clips. Provides a calculated section R-value up to 7.64.
         1) 1-5/8 inch expanded polystyrene.
         2) Insulation covered with vinyl backer.
         3) Insulation covered with .embossed 30 gauge pre-painted white steel backer.
      e. Center and End Stiles:
         1) "C" shaped 16-20 gauge steel end stiles.
         2) 20 gauge steel center stiles.
         3) 16 gauge steel center stiles.
      f. Springs:
         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.
      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:
      a. White color.
      b. Brown color.
   3. Wind load 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:
    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.
    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.
    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.
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.
    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.
        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:
        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.
        4) Flush mounting.

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

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.

E. Sectional Steel Doors Model 405 Doors by Overhead Door™ Brand. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly of roll formed steel type with tongue and groove meeting rails and C-Shaped stile construction.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: Nominal 24 gauge, galvanized steel.
d. Center and End Stiles: 16-20 gauge steel.
e. Springs:
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. 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.
g. 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.
h. 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:
a. White color.

b. Brown color.

3. Wind load 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:
   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.
   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.
   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.
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.
    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.
       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:

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.
4) Flush mounting.
5) Surface mounting.
6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

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.

F. Sectional Steel Doors by Overhead Door™ Brand. Model 406. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly of roll formed steel type with tongue and groove meeting rails and C-Shaped stile construction.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: Nominal 24 gauge, galvanized steel.
d. Insulation: Insulation held in place with polymer clips. Provides a calculated section R-value up to 7.64.
1) 1-5/8 inch expanded polystyrene.
2) Insulation covered with vinyl backer.
3) Insulation covered with .30-gauge embossed pre-painted white steel.
e. Center and End Stiles: 16-20 gauge steel.
f. Springs:
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.
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:
   a. White color.
   b. Brown color.
3. Wind load 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:
   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.
   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.
   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.
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.
    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.
    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:
    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.
    4) Flush mounting.
    5) Surface mounting.
    6) Interior location.
    7) Exterior location.
    8) Both interior and exterior location.
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.

G. Sectional Overhead Steel Doors: Model 416 Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
    a. Panel Thickness: 2 inches (51 mm).
    b. Exterior Surface: Flush.
    c. Section Material: 16 gauge, galvanized steel.
    d. Center and End Stiles: 16 gauge steel.
    e. Springs:
        1) 10,000 cycles.
        2) 25,000 cycles.
        3) 50,000 cycles.
        4) 75,000 cycles.
        5) 100,000 cycles.
    f. Partial Glazing of Steel Panels:
        1) Non-Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
    g. Full Glazed Aluminum Sash Panels:
        1) Acrylic glazing.
        2) 1/8 inch (3 mm) double strength glass.
2. Finish and Color: Two coat baked-on polyester, white color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
    a. Design pressure of _____ lb/sq ft (_____kPa).

b. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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.
   e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

H. Sectional Overhead Steel Doors: Model 420 Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
   1. Door Assembly: Steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
      a. Panel Thickness: 2 inches (51 mm).
      b. Exterior Surface: Ribbed.

c. Section Material: 20 gauge, galvanized steel.
d. Center and End Stiles: 16 gauge steel.
e. Springs:
    1) 10,000 cycles.
    2) 25,000 cycles.
    3) 50,000 cycles.
    4) 75,000 cycles.
    5) 100,000 cycles.
f. Partial Glazing of Steel Panels:
    1) Non-Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
g. Full Glazed Aluminum Sash Panels:
    1) Acrylic glazing.
    2) 1/8 inch (3 mm) double strength glass.

2. Finish and Color: Two coat baked-on polyester, white color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
    a. Design pressure of _____ lb/sq ft (_____kPa).
    b. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
    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.
    e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
        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.
        3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.

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

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.

I. Sectional Overhead Steel Doors: Model 421 Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly of roll formed steel type with tongue and groove 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.
   d. Center and End Stiles: 20 gauge steel.
   e. Springs:
      1) 10,000 cycles.
      2) 25,000 cycles.
      3) 50,000 cycles.
      4) 75,000 cycles.
      5) 100,000 cycles.
   f. Partial Glazing of Steel Panels:
      1) Impact rated: 1/4 inch (6 mm) Polycarbonate glazing.
2. Finish and Color: Two coat baked-on polyester, white color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of plus 11.4 minus 12.7 psf at 9 feet 4 inches wide to 31.6 psi at 24 feet 2 inches wide.
   b. Provide to meet FBC, TDI and Miami-Dade Specifications. Large Missile-Impact – Garage Doors up to 24 feet 2 inches wide
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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.
   e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.

a. Entrapment Protection: Required for momentary contact, includes radio control operation.
    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.
    3) Photoelectric sensors monitored to meet UL 325/2010.
b. Operator Controls:
    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.
    4) Flush mounting
    5) Surface mounting
    6) Interior location
    7) Exterior location
    8) Both interior and exterior location
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

J. Insulated Steel Sectional Overhead Doors: Model 423 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Insulated steel door assembly of roll formed steel type with tongue and groove meeting rails and box shaped 20 gauge stile construction.
    a. Panel Thickness: 2 inches (51 mm).
    b. Exterior Surface: Ribbed.
    c. Exterior Steel: 20 gauge, galvanized steel
    d. Back Cover:
        1) .022 inch minimum embossed pre-painted white steel.
        2) Insulation covered with vinyl.
    e. Center and End Stiles: 20 gauge steel.
    f. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
        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.
    g. Insulation: 1-5/8 inch expanded polystyrene.
    h. Thermal Values:
        1) Polystyrene – Calculated section R-value of 7.64.
    i. Partial Glazing of Steel Panels:
        1) Impact Rated: 1/4 inch (6 mm) Polycarbonate glazing.
2. Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:

a. Design pressure of plus 11.4 minus 12.7 psf at 9 feet 4 inches wide to 31.6/ minus 35.4 psf at 24 feet 2 inches wide.
b. Provide to meet FBC, TDI and Miami-Dade Specifications. Large Missile-Impact – Garage Doors up to 24 feet 2 inches wide

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
   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.
   e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
   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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

K. Sectional Overhead Steel Doors: Model 424 Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: 24 gauge, galvanized steel.
d. Center and End Stiles: 16 gauge steel.
e. Springs:
1) 10,000 cycles.
2) 25,000 cycles.
3) 50,000 cycles.
4) 75,000 cycles.
5) 100,000 cycles.
f. Partial Glazing of Steel Panels:
1) Non-Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
g. Full Glazed Aluminum Sash Panels:
1) Acrylic glazing.
2) 1/8 inch (3 mm) double strength glass.
2. Finish and Color: Two coat baked-on polyester, white color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of _____ lb/sq ft (_____kPa).
b. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
a. Entrapment Protection: Required for momentary contact, includes radio control operation.
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.

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

b. Operator Controls:
   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.
   4) Flush mounting.
   5) Surface mounting.
   6) Interior location.
   7) Exterior location.
   8) Both interior and exterior location.

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.

L. Sectional Overhead Steel Doors: Model 427 Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
   1. Door Assembly: Steel door assembly of roll formed steel type with tongue and groove 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.
      d. Center and End Stiles: 20-gauge steel.
      e. Springs:
         1) 10,000 cycles.
         2) 25,000 cycles.
         3) 50,000 cycles.
         4) 75,000 cycles.
         5) 100,000 cycles.
      f. Partial Glazing of non-insulated Steel Panels:
         1) Impact rated: 1/4 inch (6 mm) Polycarbonate glazing.
   2. Finish and Color: Two coat baked-on polyester:
      a. White Color.
      b. Brown Color
   3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
      a. Design pressure of plus 50.0/ minus 56.0 lb/sq ft .
      b. Design pressure of plus 11.4 minus 12.7 psf at 9 feet 4 inches wide to 31.6/ minus 35.4 psf at 24 feet 2 inches wide.
      c. Provide to meet FBC, TDI and Miami-Dade Specifications. Large Missile-Impact – Garage Doors up to 24 feet 2 inches wide.
   4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
   5. Lock:
      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.

e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.

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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

M. Insulated Steel Sectional Overhead Doors: Model 429 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
   1. Door Assembly: Insulated steel door assembly of roll formed steel type with tongue and groove meeting rails and box shaped 20 gauge stile construction.
      a. Panel Thickness: 2 inches (51 mm).
      b. Exterior Surface: Ribbed.
      c. Exterior Steel: 24 gauge, galvanized steel
      d. Back Cover:
         1) Insulation covered in vinyl.
         2) Insulation covered with .022 inch minimum embossed pre-painted white steel.
      e. Center and End Stiles: 20-gauge steel.
      f. Springs
         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.

g. Insulation: 1-5/8 inch expanded polystyrene.
h. Thermal Values:
1) Polystyrene – Calculated section R-value of 7.64.
i. Partial Glazing of Steel Panels:
1) Impact Rated: 1/4 inch (6 mm) Polycarbonate glazing.
j. Finish and Color: Two coat baked-on polyester.
1) White Color
2) Brown Color

2. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of plus 50.0/ minus 56.0 lb/sq ft
b. Provide to meet Miami-Dade Specifications NOA 17-1207.08 Large Missile-Impact – Garage Doors up to 10 feet 2 inches (3.10 m) wide and 24 feet 1 inch (7.34 m) high.
c. Provide to meet Miami-Dade Specifications NOA 17-1207.09 Large Missile-Impact – Garage Doors up to 14 feet 2 inches (3.32 m) wide and 24 feet 1 inch (7.34 m) high.
3. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
4. Lock:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
5. Weatherstripping:
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.
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.
7. Manual Operation: Pull rope.
8. Manual Operation: Chain hoist.
9. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
a. Entrapment Protection: Required for momentary contact, includes radio control operation.
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.
3) Photoelectric sensors monitored to meet UL 325/2010.
b. Operator Controls:

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.
4) Flush mounting.
5) Surface mounting.
6) Interior location.
7) Exterior location.
8) Both interior and exterior location.

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.

N. Sectional Overhead Steel Doors: Model 430 Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:

1. Door Assembly: Steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
a. Panel Thickness: 2 inches (51 mm).
b. Exterior Surface: Ribbed.
c. Section Material: Nominal 24 gauge, galvanized steel.
d. Center and End Stiles: 16 gauge steel.
e. Springs:
1) 10,000 cycles.
2) 25,000 cycles.
3) 50,000 cycles.
4) 75,000 cycles.
5) 100,000 cycles.
f. Partial Glazing of Steel Panels:
1) Non-Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
g. Full Glazed Aluminum Sash Panels:
1) Acrylic glazing.
2) 1/8 inch (3 mm) double strength glass.
2. Finish and Color: Two coat baked-on polyester, white color.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of _____ lb/sq ft (_____kPa).
4. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.
5. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
6. Lock:
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.
e. Locking mechanism designed to maintain security for exterior while permitting break out when impacted from the inside.
7. Weatherstripping:

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

8. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
9. Manual Operation: Pull rope.
10. Manual Operation: Chain hoist.
11. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
        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.
        3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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.

O. Sectional Overhead Steel Doors: Model 434 Steel Doors by Overhead Door Corporation. 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.
    d. Center and End Stiles: 20 gauge steel.
    e. Springs:
        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. 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.

g. 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.

h. 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:
a. White color.
b. Brown color.

3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
a. Design pressure of plus 11.4, minus 12.7 to plus 44, minus 49.8 at 16’ wide.
b. Provide to meet FBC, TDI and Miami-Dade Specifications. Large Missile-Impact – Garage Doors up to 24’2” wide.

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.

5. Lock:
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.
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.

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.

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.
    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.
        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:
        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.
        4) Flush mounting.
        5) Surface mounting.
        6) Interior location.
        7) Exterior location.
        8) Both interior and exterior location.
    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.
        9)

P. Sectional Overhead Steel Doors: Model 436 Steel Doors by Overhead Door Corporation. 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.

d. Insulation: Insulation held in place with polymer clips. Provides a calculated section R-value of up to 7.64.
    1) 1-9/16 inch expanded polystyrene.
    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:
    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.
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:
    a. White color.
    b. Brown color.
3. Wind load Design: Provide to meet the Design/Performance requirements specified.
    a. Design pressure of plus 11.4, minus 12.7 to plus 44, minus 49.8 at 16’ wide.
    b. Provide to meet FBC, TDI and Miami-Dade Specifications. Large Missile-Impact – Garage Doors up to 24’2” wide.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock:
    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.
   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.
   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.
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.
    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.
       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:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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

A. Glazed Sectional Overhead Doors: Model 511 Aluminum Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm).diameter through rods.
a. Panel Thickness: 1-3/4 inches (44 mm).
b. Center Stile Width: 21/32 inch (17 mm).
c. End Stile Width: 2-3/4 inches (70 mm).
d. Intermediate Rail Pair Width: 1-3/8 inches (35 mm).
e. Top Rail Width:
1) 2-3/8 inches (60 mm).
2) 3-3/4 inches (95 mm).
f. Bottom Rail Width:
1) 2-3/8 inches (60 mm).
2) 3-3/4 inches (95 mm).
3) 4-1/2 inches (114 mm).
g. Aluminum Panels: 0.050 inch (1.3 mm) thick, aluminum.
h. Stiles and Rails: 6063 - T6 aluminum.
i. Springs:
1) 10,000 cycles.
2) 25,000 cycles.
3) 50,000 cycles.
4) 75,000 cycles.
5) 100,000 cycles.
j. Glazing:
1) 1/8 inch (3 mm) Acrylic glazing.
2) 1/4 inch (6 mm) Acrylic glazing.
3) 1/8 inch (3 mm) Clear Lexan glazing.
4) 1/4 inch (6 mm) Clear Lexan glazing.
5) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
6) 1/8 inch (3 mm) Tempered glass.
7) 1/4 inch (6 mm) Tempered glass.
8) 1/2 inch (12.5 mm) Tempered Insulating glass.
9) 1/4 inch (6 mm) Wire glass.
10) 1/8 inch (3 mm) Double Strength glass.
11) 1/2 inch (12.5 mm) Double Strength Insulating glass.
12) 1/8 inch (3 mm) Low E glazing.
13) 1/4 inch (6 mm) Low E glazing.
14) 1/2 inch (12.5 mm) Low E Insulated glazing.
15) 1/8 inch (3 mm) Solar Bronze glazing.
16) 1/4 inch (6 mm) Solar Bronze glazing.
17) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
18) 1/8 inch (3 mm) Obscure glazing.
19) 1/4 inch (6 mm) Obscure glazing.
20) 1/2 inch (12.5 mm) Obscure Insulated glazing.
21) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).

22) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
23) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).

2. Finish and Color:
   a. Anodized Finish: Clear anodized.
   b. Anodized Finish: Bronze anodized.
   c. Powder coat finish bronze light.
   d. Powder coat finish bronze medium.
   e. Powder coat finish bronze dark.
   f. Powder Coating Finish: Color as selected by Architect from manufacturer's standard colors.
3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock: Interior galvanized single unit.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

B. Glazed Sectional Overhead Doors: Model 521 Aluminum Doors by Overhead Door Corporation.
   1. Door Assembly: Stile and rail assembly secured with 1/4 inch (6 mm) diameter through rods.
      a. Panel Thickness: 1-3/4 inches (44 mm).
      b. Center Stile Width: 2-11/16 inches (68 mm)
      c. End Stile Width: 3-5/16 inches (84 mm)
      d. Intermediate Rail Pair Width: 3-11/16 inches (94 mm).
      e. Top Rail Width:
         1) 2-3/8 inches (60 mm).
         2) 3-3/4 inches (95 mm).
      f. Bottom Rail Width:
         1) 3-3/4 inches (95 mm).
         2) 4-1/2 inches (114 mm).
      g. Aluminum Panels: 0.050 inch (1.3 mm) thick, aluminum.
      h. Stiles and Rails: 6063 - T6 aluminum.
      i. Springs:
         1) 10,000 cycles.
         2) 25,000 cycles.
         3) 50,000 cycles.
         4) 75,000 cycles.
         5) 100,000 cycles.
      j. Glazing:
         1) Impact:
            (a) .250 inch (6.35 mm) Clear UV Resistant Polycarbonate.
            (b) .250 inch (6.35 mm) Matte White Obscure UV Resistant Polycarbonate.
         2) Non-Impact:
            (a) 1/8 inch (3 mm) Acrylic glazing.
            (b) 1/4 inch (6 mm) Acrylic glazing.
            (c) 1/8 inch (3 mm) Clear Lexan glazing.
            (d) 1/4 inch (6 mm) Clear Lexan glazing.
            (e) 1/2 inch (12.5 mm) Clear Lexan Insulated glazing.
            (f) 1/8 inch (3 mm) Tempered glass.
            (g) 1/4 inch (6 mm) Tempered glass.
            (h) 1/2 inch (12.5 mm) Tempered Insulating glass.
            (i) 1/4 inch (6 mm) Wire glass.
            (j) 1/8 inch (3 mm) Double Strength glass.
            (k) 1/2 inch (12.5 mm) Double Strength Insulating glass.
            (l) 1/8 inch (3 mm) Low E glazing.
            (m) 1/4 inch (6 mm) Low E glazing.
            (n) 1/2 inch (12.5 mm) Low E Insulated glazing.
            (o) 1/8 inch (3 mm) Solar Bronze glazing.
            (p) 1/4 inch (6 mm) Solar Bronze glazing.
            (q) 1/2 inch (12.5 mm) Solar Bronze Insulated glazing.
            (r) 1/8 inch (3 mm) Obscure glazing.
            (s) 1/4 inch (6 mm) Obscure glazing.
            (t) 1/2 inch (12.5 mm) Obscure Insulated glazing.
            (u) 1/4 inch (6 mm) Twin-Wall Polycarbonate (clear, bronze, white).
            (v) 3/8 inch (9.5 mm) Twin-Wall Polycarbonate (clear, bronze, white).
            (w) 5/8 inch (15.87 mm) Triple-Wall Polycarbonate (clear, bronze, white).
   2. Finish and Color:

a. Anodized Finish: Clear anodized.
b. Anodized Finish: Bronze anodized.
c. Powder coat finish bronze light.
d. Powder coat finish bronze medium.
e. Powder coat finish bronze dark.
f. Powder Coating Finish: Color as selected by Architect from manufacturer's standard colors.

3. Wind Load Design: Design as calculated in accordance with applicable code as follows:
   a. Design pressure of _____ lb/sq ft (_____kPa).
   b. Provide to meet Florida Building Code Product Approval #FL 17629 Large Missile-Impact.
   c. Provide to meet Florida Building Code Product Approval #FL 11734 Non-Impact.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Lock: Interior galvanized single unit.
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.
8. Manual Operation: Pull rope.
9. Manual Operation: Chain hoist.
10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
    a. Entrapment Protection: Required for momentary contact, includes radio control operation.
       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.
       3) Photoelectric sensors monitored to meet UL 325/2010.
    b. Operator Controls:
       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.
       4) Flush mounting.
       5) Surface mounting.
       6) Interior location.
       7) Exterior location.
       8) Both interior and exterior location.
    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.

C. Glazed Sectional Overhead Doors: Model 522 Aluminum Doors by Overhead Door Corporation.
   1. Door Assembly: Stile and rail assembly of aluminum alloy 6063-T6, 1-3/8 inch thick stiles and rails, ¼ inch tempered glass
   2. 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
      a. Stiles: Top, bottom, and end stiles are 3-1/2 inches wide, center stile 3 inches wide, minimum wall thickness 0.062 inch.
      b. Springs:
         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.
      c. Glazing:
         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
   3. 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
   4. Hardware: Black and white powder coated steel hinges and fixtures. Ball bearing rollers with hardened steel races.
   5. Lock:
      a. Interior mounted slide lock.
      b. Interior mounted slide 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.
      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.
      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.
   8. Manual Operation: Pull rope.
   9. Manual Operation: Chain hoist.
   10. Electric Motor Operation: Provide UL listed electric operator, 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. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.

a. Entrapment Protection: Required for momentary contact, includes radio control operation.
    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.
    3) Photoelectric sensors monitored to meet UL 325/2010.
b. Operator Controls:
    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.
    4) Flush mounting.
    5) Surface mounting.
    6) Interior location.
    7) Exterior location.
    8) Both interior and exterior location.
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.

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 adjacent 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.

F. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.4 CLEANING AND ADJUSTING

A. Adjust door assembly to smooth operation and in full contact with weatherstripping.

B. Clean doors, frames, glass, and polycarbonate according to manufacturer's instructions.

C. Remove temporary labels and visible markings. Do not remove polycarbonate care and maintenance label required to maintain warranty.

3.5 PROTECTION

A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

B. Protect installed products until completion of project.

C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION