SECTION 083613
SECTIONAL DOORS - WAYNE DALTON

<<<< UPDATE NOTES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Overhead sectional steel doors.

B. Overhead sectional aluminum doors.

1.02 RELATED REQUIREMENTS

A. Section **<< 079200 - Joint Sealants>>**: Sealing joints between frames and adjacent construction.

B. Section **<< 087100 - Door Hardware>>**: Lock cylinders.

C. Section **<< 260533.13 - Conduit for Electrical Systems>>**: Conduit from electric circuit to operator and from operator to control station, and empty conduit from control units to door operator.

D. Section **<< 260583 - Wiring Connections>>**.

1.03 DEFINITIONS

A. DSB: Double Strength Billet.

B. SSB: Single Strength Billet.

1.04 REFERENCE STANDARDS

A. ITS (DIR) - Directory of Listed Products; Current Edition.

B. UL (DIR) - Online Certifications Directory; Current Edition.

C. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.05 SUBMITTALS

A. See Section **<< 013000 - Administrative Requirements>>** for submittal procedures.

B. Product Data: Submit manufacturer's standard literature showing materials and details of construction and finish.**<< Include data on electrical operation.; None - N/A>>**

C. Shop Drawings: Indicate rough and actual opening dimensions, anchorage methods, hardware locations, and installation details.

D. Samples: **<< Two; _____>>** panel samples or color chips, **<< 4 inches long (102 mm long); ___ inches long (___ mm long)>>**, illustrating shape, color, and finish texture.

E. Manufacturer's Installation Instructions: Indicate installation sequence and installation, adjustment, and alignment procedures.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Operation and Maintenance Data: Indicate modes of operation, lubrication requirements and frequency, and periodic adjustments required.

I. Specimen warranty.

J. Executed warranty.

K. Project Record Documents: Include as-built electrical diagrams for electrical operation and connection to fire alarm system.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum **<< 5 years; _____ years>>** of**<< documented; _____; None - N/A>>** experience.

B. Installer Qualifications: Company specializing in performing work of type specified, with minimum **<< 3 years; _____ years>>** of**<< documented; _____; None - N/A>>** experience**<< and approved by manufacturer; None - N/A>>**.

C. Comply with **<< applicable; _____>>** code for motor and motor control requirements.

D. Products Requiring Electrical Connection: Listed and classified by **<< ITS (DIR); UL (DIR); testing firm acceptable to authorities having jurisdiction; or _____>>**.

1.07 WARRANTY

A. See Section **<< 017800 - Closeout Submittals>>** for additional warranty requirements.

B. Manufacturer Warranty: Provide manufacturer warranty for counterbalance shaft assembly for years indicated under individual doors. Complete forms in **<<Owner>>**'s name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wayne Dalton, a division of Overhead Door Corporation**<< ; _____; None - N/A>>**: www.wayne-dalton.com/#sle.
   1. **<< _____>>**.
   2. **<< _____>>**.
   3. Substitutions: **<< See Section 016000 - Product Requirements; Not permitted>>**.

2.02 OVERHEAD SECTIONAL STEEL DOORS

A. **<< _____ : ; None - N/A>>**Sectional Warehouse Doors: Wayne Dalton; **<< Model CX-20; Model CX-24; Model CX-2400>>**.
   1. Panels: **<< Steel construction with exterior sheet, interior sheet, and core reinforcement; Steel construction with exterior sheet>>**.
   2. Width: **<< _____feet_____inches (_____m)>>**.
   3. Height: **<< _____feet_____inches (_____m)>>**.
   4. Mounting: Surface mounted on interior of building.
   5. Opening Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
   6. Closing Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
   7. Operation Cycles: Capable of operating for minimum **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles. One operation cycle is complete when door is opened from closed position to fully open position and returned to closed position.
   8. Available Warranty:
      a. Door Only: One year.
   9. Panel Material: **<< 20 gauge, 0.0396 inch (1.01 mm); 24 gauge, 0.0276 inch (0.701 mm); Nominal 24 gauge, 0.0276 inch (0.701 mm)>>** galvanized steel.
      a. Panel Thickness: **<< 2 inches (51 mm)>>**.
      b. Joint Profile: Tongue and groove.
      c. Section Height: **<< 19 inches (483 mm); 21 inches (533 mm); 24 inches (610 mm)>>**.
      d. Insulation: **<< Not required; Expanded polystyrene>>**.
         1) R-value (RSI-value): **<< 3.22 (0.57)>>**.
         2) Interior Backer: **<< Not required; High impact polystyrene; Steel>>**.
      e. Exterior Surface Profile: Ribbed.

f. Lites: **<< Not required; Vision lites; Full-view lites>>**.
g. Exterior Finish: **<< White smooth; Brown smooth; White stucco embossed; Brown stucco embossed>>**.

10. Locking Options to Include: **<< None; Slide lock; Cylinder>>**.
    a. Lock Locations: **<< Both jambs; Left only; Right only>>**.
11. Weatherstripping and Seals: **<< Required; Not required>>**.
12. Tracks: Constructed of steel with members fully bolted together.
    a. Size: **<< 2 inches (51 mm); 3 inches (76 mm)>>**.
    b. Finish: Mill finish.
13. Brackets: Steel to support counterbalance and curtain.
    a. Finish: Hot-dip galvanized.
14. Springs: Rated for **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles.
15. Manual Operation: **<< Push-up; Chain hoist>>**.
16. Motor Operation: Provide UL-listed electric operator; size as recommended by manufacturer to move door in either direction at minimum **<< 6 inches (152 mm)>>**, maximum **<< 12 inches (305 mm)>>** per second.
    a. Timer to Close: **<< Not required; Automatic closing controlled by adjustable hold-open time delay>>**.
    b. Operation Supply Voltage: **<< 115/208/230V 1 phase 60Hz; 208/230/460V 3 phase 60Hz; 575V 3 phase 60Hz; 220V 1 phase 50Hz; 220V 3 phase 50Hz; 400V 3 phase 50Hz>>**.
    c. Signaling Device: **<< Horn and strobe combination; Traffic warning light>>**.
    d. Actuation Device: Provide **<< push button; key switch; pull cord; loop detector; motion detector; treadle switch; and radio control>>**.
    e. Motor Mounting: **<< Wall mounted; Trolley>>**, **<< right-hand side; left-hand side; center>>**.
    f. Motor Enclosure: **<< Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; Totally enclosed, nonventilated>>**.
    g. Obstruction Safety Detection: Infrared sensor mounted in-plane to door curtain at **<< 6 inches (152 mm)>>** from floor.
    h. Reversing Safety Edge: **<< Not required; Door provided with wireless monitored electric safety edge; Door provided with wired monitored electric safety edge>>**.

B. **<< _____ : ; None - N/A>>**Sectional Steel Doors: Wayne Dalton; **<< Model 216; Model 220; Model 2411; Model 2415>>**.
1. Panels: Steel construction with exterior sheet.
2. Width: **<< _____feet _____inches (_____m)>>**.
3. Height: **<< _____feet _____inches (_____m)>>**.
4. Mounting: Surface mounted on interior of building.
5. Opening Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
6. Closing Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
7. Operation Cycles: Capable of operating for minimum **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles. One operation cycle is complete when door is opened from closed position to fully open position and returned to closed position.
8. Available Warranty:
    a. Door Only: One year.
9. Panel Material:
    a. Exterior Steel Thickness: **<< 16 gauge, 0.0635 inch (1.613 mm); 20 gauge, 0.0396 inch (1.01 mm); Nominal 24 gauge, 0.0276 inch (0.701 mm); 24 gauge, 0.0276 (0.701 mm)>>** galvanized steel.

b. Panel Thickness: **<< 2 inches (51 mm)>>**.
c. Joint Profile: Shiplap.
d. Section Height: Manufacturer's standard based on door height.
e. Exterior Surface Profile: **<< Smooth; Ribbed; Stucco embossed>>**.
f. Lites: **<< Not required; Aluminum sash section lites with double strength billet (DSB) glazing; Insulated double strength billet (DSB) vision lites>>**.
1) Glazing: **<< 1/8 inch (3 mm) DSB glass; 1/2 inch (13 mm) DSB glass; 1/8 inch (3 mm) tempered DSB glass; 1/4 inch (6 mm) tempered DSB glass; 1/2 inch (13 mm) tempered DSB glass; 1/8 inch (3 mm) acrylic; 1/4 inch (6 mm) acrylic; 1/2 inch (13 mm) acrylic; 1/8 inch (3 mm) polycarbonate; 1/4 inch (6 mm) polycarbonate; 1/2 inch (13 mm) polycarbonate; 1/4 inch (6 mm) wired glass>>**.
g. Exterior Finish: **<< White smooth; Brown smooth; White stucco; Brown stucco>>**.

10. Insulation: **<< Expanded polystyrene>>**.
    a. R-value (RSI-value): **<< 3.03 (0.53)>>**.
11. Locking Options to Include: **<< None; Slide lock; Cylinder>>**.
    a. Lock Locations: **<< Both jambs; Left only; Right only>>**.
12. Weatherstripping and Seals: **<< Required; Not required>>**.
13. Tracks: Constructed of steel with members fully bolted together.
    a. Size: **<< 2 inches (51 mm); 3 inches (76 mm)>>**.
    b. Finish: Galvanized steel.
14. End Stiles: **<< 16-gauge, 0.0635-inch (1.613 mm)>>** galvanized steel.
15. Intermediate Stiles: **<< 16-gauge, 0.0635-inch (1.613 mm)>>** galvanized steel.
16. Brackets: Steel to support counterbalance and curtain.
    a. Finish: Hot-dip galvanized.
17. Springs: Rated for **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles.
18. Manual Operation: **<< Push-up; Chain hoist>>**.
19. Motor Operation: Provide UL-listed electric operator; size as recommended by manufacturer to move door in either direction at minimum **<< 6 inches (152 mm)>>**, maximum **<< 12 inches (305 mm)>>** per second.
    a. Timer to Close: **<< Not required; Automatic closing controlled by adjustable hold-open time delay>>**.
    b. Operation Supply Voltage: **<< 115/208/230V 1 phase 60Hz; 208/230/460V 3 phase 60Hz; 575V 3 phase 60Hz; 220V 1 phase 50Hz; 220V 3 phase 50Hz; 400V 3 phase 50Hz>>**.
    c. Signaling Device: **<< Horn and strobe combination; Traffic warning light>>**.
    d. Actuation Device: Provide **<< push button; key switch; pull cord; loop detector; motion detector; treadle switch; and radio control>>**.
    e. Motor Mounting: **<< Wall mounted; Trolley>>**, **<< right-hand side; left-hand side; center>>**.
    f. Motor Enclosure: **<< Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; Totally enclosed, nonventilated>>**.
    g. Obstruction Safety Detection: Infrared sensor mounted in-plane to door curtain at greater than or equal to **<< 6 inches (152 mm)>>** from floor.
    h. Reversing Safety Edge: **<< Not required; Door provided with wireless monitored electric safety edge; Door provided with wired monitored electric safety edge>>**.

C. **<< _____ : ; None - N/A>>**Sectional Steel Doors: Wayne Dalton; **<< Model C-20; Model C-24; Model C-2400>>**.
1. Panels: **<< Steel construction with exterior sheet, interior sheet, and core reinforcement; Steel construction with exterior sheet>>**.
2. Width: **<< _____feet_____inches (_____m)>>**.

3. Height: **<< _____ feet _____ inches (_____ m)>>**.
4. Mounting: Surface mounted on interior of building.
5. Opening Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
6. Closing Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
7. Wind Load: Design door assembly to withstand uniform pressure of **<< _____ psf (_____ kPa)>>**.
   a. Impact Resistant: Yes.
8. Wind Load: Not required.
9. Impact Resistant: **<< Required; Not required>>**.
10. Operation Cycles: Capable of operating for minimum **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles. One operation cycle is complete when door is opened from closed position to fully open position and returned to closed position.
11. Available Warranty:
    a. Door Only: One year.
12. Panel Material:
    a. Exterior Steel Thickness: **<< 20 gauge, 0.0396 inch (1.01 mm); Nominal 24 gauge, 0.0276 inch (0.701 mm); 24 Gauge, 0.0276 inch (0.701 mm)>>** galvanized steel.
    b. Panel Thickness: **<< 2 inches (51 mm)>>**.
    c. Joint Profile: Tongue and groove.
    d. Section Height: Manufacturer's standard based on door height.
    e. Insulation: **<< None; Polystyrene>>**.
       1) Panel R-value (RSI-value): **<< 7.64 (1.35)>>**.
       2) Interior Backer: **<< Not required; Galvanized steel; High impact polystyrene>>**.
    f. Exterior Surface Profile: **<< Smooth; Ribbed; Stucco embossed>>**.
    g. Lites: **<< Not required; Full view lites; Vision lites; Impact lites>>**.
    h. Exterior Finish: **<< White; Brown>>**.
13. Locking Options to Include: **<< None; Slide lock; Cylinder>>**.
    a. Lock Locations: **<< Both jambs; Left only; Right only>>**.
14. Weatherstripping and Seals: **<< Required; Not required>>**.
15. Tracks: Constructed of steel with members fully bolted together.
    a. Size: **<< 2 inches (51 mm); 3 inches (76 mm)>>**.
    b. Finish: Mill finish.
16. End Stiles: **<< 16 gauge, 0.0635 inch (1.613 mm)>>** galvanized steel.
17. Intermediate Stiles: **<< 16 gauge, 0.0635 inch (1.613 mm)>>** galvanized steel.
18. Brackets: Steel to support counterbalance and curtain.
    a. Finish: Hot-dip galvanized.
19. Springs: Rated for **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles.
20. Manual Operation: **<< Push-up; Chain hoist>>**.
21. Motor Operation: Provide UL-listed electric operator; size as recommended by manufacturer to move door in either direction at minimum **<< 6 inches (152 mm)>>**, maximum **<< 12 inches (305 mm)>>** per second.
    a. Timer to Close: **<< Not required; Automatic closing controlled by adjustable hold-open time delay>>**.
    b. Operation Supply Voltage: **<< 115/208/230V 1 phase 60Hz; 208/230/460V 3 phase 60Hz; 575V 3 phase 60Hz; 220V 1 phase 50Hz; 220V 3 phase 50Hz; 400V 3 phase 50Hz>>**.
    c. Signaling Device: **<< Horn and strobe combination; Traffic warning light>>**.
    d. Actuation Device: Provide **<< push button; key switch; pull cord; loop detector; motion detector; treadle switch; and radio control>>**.

e. Motor Mounting: **<< Wall mounted; Trolley>>**, **<< right-hand side; left-hand side; center>>**.
f. Motor Enclosure: **<< Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; Totally enclosed, nonventilated>>**.
g. Obstruction Safety Detection: Infrared sensor mounted in-plane to door curtain at **<< 6 inches (152 mm)>>** from floor.
h. Reversing Safety Edge: **<< Not required; Door provided with wireless monitored electric safety edge; Door provided with wired monitored electric safety edge>>**.

D. **<< _____ : ; None - N/A>>**Thermospan Steel Sectional Doors: Wayne Dalton; **<< Model 125; Model 150; Model 200; Model 200-20>>**.
1. Panels: Steel construction with exterior sheet, interior sheet, and core reinforcement.
2. Width: **<< _____feet _____inches (_____m)>>**.
3. Height: **<< _____feet _____inches (_____m)>>**.
4. Mounting: Surface mounted on interior of building.
5. Opening Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
6. Closing Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
7. Model 150: Air Infiltration at **<< 25 mph (40 km/hr)>>**: **<< 0.08 cfm/sq ft (1.46 cu m/hr/sq m); 0.13 cfm/sq ft (2.37 cu m/hr/sq m); 0.15 cfm/sq ft (2.74 cu m/hr/sq m); 0.21 cfm/sq ft (3.83 cu m/hr/sq m); 0.46 cfm/sq ft (8.40 cu m/hr/sq m); 4.21 cu m/hr/sq m (____ mm)>>**.
8. Models 200 and 200-30: Air Infiltration at **<< 15 mph (24 km/hr)>>**: **<< 0.17 cfm/sq ft (3.11 cu m/hr/sq m)>>**.
9. U-Factor: **<< 0.19; 0.22; 0.30>>**.
10. R-value (RSI-value): **<< 3.33 (0.59); 4.54 (0.80); 5.26 (0.93)>>**.
11. STC Rating: **<< Class 21; Class 22>>**.
12. Operation Cycles: Capable of operating for minimum **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles. One operation cycle is complete when door is opened from closed position to fully open position and returned to closed position.
13. Available Warranty:
    a. Door Only: One year.
14. Panel Material:
    a. Exterior Steel Thickness: **<< 31-gauge, 0.012-inch (0.30 mm); 30-gauge, 0.0157-inch (0.40 mm); 22-gauge, 0.0336-inch (0.85 mm); 21-gauge, 0.0366-inch (0.93 mm)>>** galvanized steel.
    b. Panel Thickness: **<< 2 inches (51 mm); 3 inches (76 mm); 1-1/2 inches (38 mm); 7/8 inch (22 mm); 1-3/8 inches (35 mm)>>**.
    c. Joint Profile: Tongue and groove.
    d. Section Height: Manufacturer's standard based on door height.
    e. Exterior Surface Profile: **<< Flush; Ribbed; Microgroove; Stucco texture; Raised panel>>**.
    f. Lites: **<< Not required; Double thermal acrylic; Aluminum sash section with double strength billet (DSB) glazing; Insulated double strength billet (DSB); Clear long lites; Large lites>>**.
    g. Exterior Finish: **<< White; Tan; Brown; Gray; Almond; Industrial Brown; Black; Sandstone; Forest Green; Chestnut Brown; Terra Bronze; Desert Tan; Trinar White; Trinar Brown>>**.
15. Locking Options to Include: **<< None; Slide lock; Cylinder>>**.
    a. Lock Locations: **<< Both jambs; Left only; Right only>>**.
16. Weatherstripping and Seals: **<< Required; Not required>>**.

17. Tracks: Constructed of steel with members fully bolted together.
    a. Size: **<< 2 inches (51 mm); 3 inches (76 mm)>>**.
    b. Finish: Mill finish.
18. End Stiles: **<< 17-gauge, 0.0575-inch (1.46 mm); 14-gauge, 0.0785-inch (1.99 mm); 21-gauge, 0.0366-inch (0.93 mm); single 16-gauge, 0.0635-inch (1.613 mm); double 16-gauge, 0.0635-inch (1.613 mm)>>** galvanized steel.
19. Brackets: Steel to support counterbalance and curtain.
    a. Finish: Hot-dip galvanized.
20. Springs: Rated for **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles.
21. Manual Operation: **<< Push-up; Chain hoist>>**.
22. Motor Operation: Provide UL-listed electric operator; size as recommended by manufacturer to move door in either direction at minimum **<< 6 inches (152 mm)>>** per second, maximum **<< 12 inches (305 mm)>>** per second.
    a. Timer to Close: **<< Not required; Automatic closing controlled by adjustable hold-open time delay>>**.
    b. Operation Supply Voltage: **<< 115/208/230V 1 phase 60Hz; 208/230/460V 3 phase 60Hz; 575V 3 phase 60Hz; 220V 1 phase 50Hz; 220V 3 phase 50Hz; 400V 3 phase 50Hz>>**.
    c. Signaling Device: **<< Horn and strobe combination; Traffic warning light>>**.
    d. Actuation Device: Provide **<< push button; key switch; pull cord; loop detector; motion detector; treadle switch; and radio control>>**.
    e. Motor Mounting: **<< Wall mounted; Trolley>>**, **<< right-hand side; left-hand side; center>>**.
    f. Motor Enclosure: **<< Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; Totally enclosed, nonventilated>>**.
    g. Obstruction Safety Detection: Infrared sensor mounted in-plane to door curtain at **<< 6 inches (152 mm)>>** from floor.
    h. Reversing Safety Edge: **<< Not required; Door provided with wireless monitored electric safety edge; Door provided with wired monitored electric safety edge>>**.

E. **<< _____ : ; None - N/A>>**ThermoMark Insulated Steel Sectional Doors: Wayne Dalton; **<< Model 5150; Model 5155; Model 5200; Model 5255; Model 530>>**.
1. Panels: Steel construction with exterior sheet, interior sheet, and core reinforcement.
2. Width: **<< _____feet _____inches (_____m)>>**.
3. Height: **<< _____feet _____inches (_____mm)>>**.
4. Mounting: Surface mounted on interior of building.
5. Opening Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
6. Closing Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
7. Air Infiltration at **<< 15 mph (24 km/hr)>>**: **<< 0.23 cfm/sq ft (4.20 cu m/hr/sq m); 0.21 cfm/sq ft (3.84 cu m/hr/sq m); 0.07 cfm/sq ft (1.28 cu m/hr/sq m)>>**.
8. U-Factor: **<< 0.14; 0.18; 0.21>>**.
9. R-value (RSI-value): **<< 4.76 (0.84); 5.55 (0.98); 7.14 (1.26)>>**.
10. STC Rating: **<< Not Required; 20; 22>>**.
11. Operation Cycles: Capable of operating for minimum **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles. One operation cycle is complete when door is opened from closed position to fully open position and returned to closed position.
12. Available Warranty:
    a. Door Only: Ten years against delamination and cracking, splitting, or deterioration due to rust-through.
13. Panel Material:

a. Exterior Steel Thickness: **<< 30-gauge, 0.0157-inch (0.398 mm)>>** galvanized steel.
b. Panel Thickness: **<< 1-3/8 inches (35 mm); 1-7/8 inches (48 mm); 3 inches (76 mm)>>**.
c. Joint Profile: Tongue and groove.
d. Section Height: Manufacturer's standard based on door height.
e. Exterior Surface Profile: **<< Embossed wood grain; Stucco embossed pinstripe; Stucco embossed>>**.
f. Panel Profile: **<< Standard; V5 panel; Long panel; Flush panel; V10 panel>>**.
g. Lites: **<< Not required; Residential lites; Thermolite; Full view lites; Bubble lites; _____>>**.
h. Exterior Finish: **<< White; Almond; Taupe; Brown; Terra Bronze; Black; Golden Oak; Walnut; Mission Oak; White textured finish; Almond textured finish; Taupe textured finish; Brown textured finish; Black textured finish>>**.

14. Locking Options to Include: **<< None; Slide lock; Cylinder>>**.
    a. Lock Locations: **<< Both jambs; Left only; Right only>>**.
15. Weatherstripping and Seals: **<< Required; Not required>>**.
16. Tracks: Constructed of steel with members fully bolted together.
    a. Size: **<< 2 inches (51 mm); 3 inches (76 mm)>>**.
    b. Finish: Mill finish.
17. End Stiles: **<< 16-gauge, 0.0635-inch (1.613 mm)>>** galvanized steel.
18. Intermediate Stiles: **<< 16-gauge, 0.0635-inch (1.613 mm)>>** galvanized steel.
19. Brackets: Steel to support counterbalance and curtain.
    a. Finish: Hot-dip galvanized.
20. Springs: Rated for **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles.
21. Manual Operation: **<< Push-up; Chain hoist>>**.
22. Motor Operation: Provide UL-listed electric operator; size as recommended by manufacturer to move door in either direction at minimum **<< 6 inches (152 mm)>>**, maximum **<< 12 inches (305 mm)>>** per second.
    a. Timer to Close: **<< Not required; Automatic closing controlled by adjustable hold-open time delay>>**.
    b. Operation Supply Voltage: **<< 115/208/230V 1 phase 60Hz; 208/230/460V 3 phase 60Hz; 575V 3 phase 60Hz; 220V 1 phase 50Hz; 220V 3 phase 50Hz; 400V 3 phase 50Hz>>**.
    c. Signaling Device: **<< Horn and strobe combination; Traffic warning light>>**.
    d. Actuation Device: Provide **<< push button; key switch; pull cord; loop detector; motion detector; treadle switch; and radio control>>**.
    e. Motor Mounting: **<< Wall mounted; Trolley>>**, **<< right-hand side; left-hand side; center>>**.
    f. Motor Enclosure: **<< Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; Totally enclosed, nonventilated>>**.
    g. Obstruction Safety Detection: Infrared sensor mounted in-plane to door curtain at **<< 6 inches (152 mm)>>** from floor.
    h. Reversing Safety Edge: **<< Not required; Door provided with wireless monitored electric safety edge; Door provided with wired monitored electric safety edge>>**.

2.03 OVERHEAD SECTIONAL ALUMINUM DOORS

A. **<< _____ : ; None - N/A>>**Aluminum Sectional Doors: Wayne Dalton; **<< Model 451; Model 452; Model 453; Model 464; Model K-AL>>**.
   1. Panels: Aluminum construction and reinforcement.
   2. Width: **<< _____feet _____inches (_____m)>>**.

3. Height: **<< _____ feet _____ inches (_____ m)>>**.
4. Mounting: Surface mounted on interior of building.
5. Opening Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
6. Closing Speed: Door to operate at variable speed of **<< 6 to 12 inches (152 to 305 mm)>>** per second.
7. U-Factor: **<< 0.70; 0.80; 0.86; 0.93>>**.
8. R-value (RSI-value): **<< 1.08 (0.19); 1.11 (0.19); 1.16 (0.20)>>**.
9. Operation Cycles: Capable of operating for minimum **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles. One operation cycle is complete when door is opened from closed position to fully open position and returned to closed position.
10. Available Warranty:
    a. Door Only: One year.
11. Panel Material: Extruded 6063-T6 aluminum.
    a. Panel Thickness: **<< 1-3/8 inches (35 mm); 1-3/4 inches (45 mm); 2 inches (51 mm)>>**.
    b. Joint Profile: **<< Tongue and groove; Shiplap; Manufacturer's standard with weather seal>>**.
    c. Section Height: Manufacturer's standard based on door height.
    d. Glazing: **<< Not required; 1/8 inch (3 mm) DSB glass; 1/8 inch (3 mm) tempered DSB glass; 1/4 inch (6 mm) tempered DSB glass; 1/8 inch (3 mm) acrylic; 1/4 inch (6 mm) acrylic; 1/8 inch (3 mm) clear polycarbonate; 1/4 inch (6 mm) clear polycarbonate; 1/4 inch (6 mm) wired glass; 1/2 inch (13 mm) DSB glass; 1/2 inch (13 mm) tempered DSB glass; 1/2 inch (13 mm) acrylic; 1/2 inch (13 mm) polycarbonate; 1/4 inch (6 mm) opaque white; 1/4 inch (6 mm) opaque black; 1/4 inch (6 mm) mirrored gray; 1/4 inch (6 mm) mirrored bronze; 1/4 inch (6 mm) translucent black>>**.
    e. Glazing: **<< Not required; 1/4 inch (6 mm) opaque white; 1/8 inch (3 mm) DSB glass; 1/4 inch (6 mm) opaque black; 1/8 inch (3 mm) tempered DSB glass; 1/4 inch (6 mm) mirrored gray; 1/4 inch (6 mm) tempered DSB glass; 1/4 inch (6 mm) mirrored bronze; 1/8 inch (3 mm) acrylic; 1/4 inch (6 mm) translucent black; 1/4 inch (6 mm) acrylic; 1/8 inch (3 mm) clear polycarbonate; 1/4 inch (6 mm) clear polycarbonate; 1/4 inch (6 mm) wired glass; 1/2 inch (13 mm) DSB glass; 1/2 inch (13 mm) tempered DSB glass; 1/2 inch (13 mm) acrylic; 1/2 inch (13 mm) polycarbonate>>**.
    f. Glazing: **<< Not required; 1/8-inch tempered glass, clear; 1/8-inch tempered glass, obscure P-62; 1/8-inch tempered glass, bronze; 1/8-inch tempered glass, satin etch; 1/8-inch polycarbonate, clear; 1/8-inch acrylic, clear; 1/4-inch tempered glass, bronze plate; 1/4-inch tempered glass, clear; 1/4-inch polycarbonate, clear; 7/32-inch laminated glass, white opaque; 1/2-inch IGU, annealed SSB glass, clear; 1/2-inch IGU, annealed SSB glass, Low-E; 1/2-inch IGU, annealed DSB glass, clear; 1/2-inch IGU, tempered DSB glass, Low-E; 1/2-inch IGU, tempered DSB glass, bronze; 1/2-inch IGU, tempered DSB glass, clear; 1/2-inch IGU, tempered DSB glass, gray; 1/2-inch IGU, tempered DSB glass, satin etch>>**.
    g. Exterior Finish: **<< Clear anodized; Light bronze anodized; Medium bronze anodized; Dark bronze anodized; Black anodized; Powder coat; color: _____>>**.
12. Locking Options to Include: **<< None; Slide lock; Cylinder>>**.
    a. Lock Locations: **<< Both jambs; Left only; Right only>>**.
13. Weatherstripping and Seals: **<< Required; Not required>>**.
14. Tracks: Constructed of steel with members fully bolted together.
    a. Size: **<< 2 inches (51 mm); 3 inches (76 mm)>>**.
    b. Finish: Galvanized steel.

15. Brackets: Steel to support counterbalance and curtain.
    a. Finish: Hot-dip galvanized.
16. Springs: Rated for **<< 10,000; 25,000; 50,000; 75,000; 100,000>>** cycles.
17. Manual Operation: **<< Push-up; Chain hoist>>**.
18. Motor Operation: Provide UL-listed electric operator; size as recommended by manufacturer to move door in either direction at minimum **<< 6 inches (152 mm)>>**, maximum **<< 12 inches (305 mm)>>** per second.
    a. Timer to Close: **<< Not required; Automatic closing controlled by adjustable hold-open time delay>>**.
    b. Operation Supply Voltage: **<< 115/208/230V 1 phase 60Hz; 208/230/460V 3 phase 60Hz; 575V 3 phase 60Hz; 220V 1 phase 50Hz; 220V 3 phase 50Hz; 400V 3 phase 50Hz>>**.
    c. Signaling Device: **<< Horn and strobe combination; Traffic warning light>>**.
    d. Actuation Device: Provide **<< push button; key switch; pull cord; loop detector; motion detector; treadle switch; and radio control>>**.
    e. Motor Mounting: **<< Wall mounted; Trolley>>**, **<< right-hand side; left-hand side; center>>**.
    f. Motor Enclosure: **<< Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; Totally enclosed, nonventilated>>**.
    g. Obstruction Safety Detection: Infrared sensor mounted in-plane to door curtain at **<< 6 inches (152 mm)>>** from floor.
    h. Reversing Safety Edge: **<< Not required; Door provided with wireless monitored electric safety edge; Door provided with wired monitored electric safety edge>>**.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

B. Verify electric power is available and meets manufacturer's requirements.

3.02 PREPARATION

A. Prepare opening to permit correct installation of door unit to perimeter air and vapor barrier seal.

B. Apply primer to wood frame.

3.03 INSTALLATION

A. Install door unit assembly in accordance with manufacturer's instructions.

B. Anchor assembly to wall construction and building framing without distortion or stress.

C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

D. Fit and align door assembly, including hardware.

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

F. Install **<< perimeter trim; closures; and _____>>**.

3.04 TOLERANCES

A. Maximum Variation from Plumb: **<< 1/16 inch (1.5 mm); ___ inch (___ mm)>>**.

B. Maximum Variation from Level: **<< 1/16 inch (1.5 mm); ___ inch (___ mm)>>**.

C. Longitudinal or Diagonal Warp: Plus or minus **<< 1/8 inch in 10 feet (3 mm in 3 m); _____ inch in 10 feet (_____ mm in 3 m)>>** straight edge.

D. Maintain dimensional tolerances and alignment with adjacent work.

3.05 ADJUSTING

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

B. Confirm operation is in accordance with manufacturer's instructions with present field representative. Identify adjustments to door assembly.

3.06 CLEANING

A. See Section **<< 017000 - Execution and Closeout Requirements>>** for additional requirements.

B. Clean doors and frames**<< and glazing; _____; None - N/A>>**.

C. Remove**<< temporary; _____; None - N/A>>** labels and visible markings.

3.07 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

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

END OF SECTION