

The Genuine. The Original.



**SECTION 083613
SECTIONAL DOORS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Upward acting sectional steel doors.
- B. Upward acting 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 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.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's standard literature showing materials and details of construction and finish.<< **Include data on electrical operation.; or None - N/A**>>
- B. Shop Drawings: Indicate rough and actual opening dimensions, anchorage methods, hardware locations, and installation details.
- C. Manufacturer's Installation Instructions: Indicate installation sequence and installation, adjustment, and alignment procedures.
- D. Installer's qualification statement.
- E. Operation and Maintenance Data: Indicate modes of operation, lubrication requirements and frequency, and periodic adjustments required.
- F. Specimen warranty.

1.05 WARRANTY

- A. 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 MANUFACTURER

- A. Overhead Door Corporation; www.overheaddoor.com; 1 (800) 929-3667.
- B. Substitutions: Not permitted.

2.02 UPWARD ACTING SECTIONAL STEEL DOORS

- A. Sectional Warehouse Doors: Overhead Door Corporation; << **Model 401; Model 402; Model 403; Model 404; Model 405; or Model 406**>>.
 - 1. Panels: << **Steel construction with exterior sheet, interior sheet, and core reinforcement; or Steel construction with exterior sheet**>>.
 - 2. Width: << **feet** **inches (** **m)**>>.
 - 3. Height: << **feet** **inch (** **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; or 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, 0.0355 inch (0.902 mm); 24 gauge, 0.024 inch (0.610 mm); or Nominal 24 gauge, 0.020 inch (0.508 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); or 24 inches (610 mm)**>>.
 - d. Insulation: << **Not required; or Expanded polystyrene**>>.
 - 1) Panel R-value (RSI-value): << **7.64 (1.35)**>>.
 - 2) Interior Backer: << **Not required; High impact polystyrene; or Steel**>>.
 - e. Exterior Surface Profile: Ribbed.
 - f. Lites: << **Not required; Vision lites; or Full-view lites**>>.
 - g. Exterior Finish: << **White smooth; Brown smooth; White stucco embossed; or Brown stucco embossed**>>.
10. Locking Options to Include: << **None; Slide lock; or Cylinder**>>.
 - a. Lock Locations: << **Both jambs; Left only; or Right only**>>.
11. Weatherstripping and Seals: << **Required; or Not required**>>.
12. Tracks: Constructed of steel with members fully bolted together.
 - a. Size: << **2 inches (51 mm); or 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; or 100,000**>> cycles.
15. Manual Operation: << **Push-up; or 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; or 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; or 400V 3 phase 50Hz**>>.
 - c. Signaling Device: << **Horn and strobe combination; or 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; or Trolley**>>, << **right-hand side; left-hand side; or center**>>.
 - f. Motor Enclosure: << **Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; or Totally enclosed, non-ventilated**>>.

- 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; or Door provided with wired monitored electric safety edge**>>.
- B. Sectional Steel Doors: Overhead Door Corporation; << **Model 416; Model 420; Model 424; or Model 430**>>.
- 1. Panels: Steel construction with exterior sheet.
 - 2. Width: << feet inches (m)>>.
 - 3. Height: << feet inch (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; or 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, 0.0336 inch (0.853 mm); 24 gauge, 0.0216 inch (0.549 mm); or 26 gauge, 0.0187 inch (0.475 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: << **Flush; or Ribbed**>>.

- f. Lites: << **Not required**; Aluminum sash section lites with double strength billet (DSB) glazing; or Insulated double strength billet (DSB) vision lites>>.
- 1) Glazing: << **1/8 inch (3 mm) double strength billet glass**; **1/2 inch (13 mm) double strength billet glass**; **1/8 inch (3 mm) tempered double strength billet glass**; **1/4 inch (6 mm) tempered double strength billet glass**; **1/2 inch (13 mm) tempered double strength billet 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**; or **1/4 inch (6 mm) wired glass**>>.
- g. Exterior Finish: << **White smooth**; **Brown smooth**; or **Powder coat smooth**>>.
10. Locking Options to Include: << **None**; **Slide lock**; or **Cylinder**>>.
- a. Lock Locations: << **Both jambs**; **Left only**; or **Right only**>>.
11. Weatherstripping and Seals: << **Required**; or **Not required**>>.
12. Tracks: Constructed of steel with members fully bolted together.
- a. Size: << **2 inches (51 mm)**; or **3 inches (76 mm)**>>.
- b. Finish: Galvanized steel.
13. End Stiles: << **16 gauge, 0.0635 inch (1.613 mm)**>> galvanized steel.
14. Intermediate Stiles: << **16 gauge, 0.0635 inch (1.613 mm)**>> 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**; or **100,000**>> cycles.
17. Manual Operation: << **Push-up**; or **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**; or **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**; or **400V 3 phase 50Hz**>>.
- c. Signaling Device: << **Horn and strobe combination**; or **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**; or **Trolley**>>, << **right-hand side**; **left-hand side**; or **center**>>.
- f. Motor Enclosure: << **Not required**; **NEMA 4-12 watertight and oiltight**; **NEMA 4X corrosion-resistant**; **Totally enclosed, fan-cooled motor**; or **Totally enclosed, non-ventilated**>>.
- 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**; or **Door provided with wired monitored electric safety edge**>>.

C. Insulated Sectional Doors: Overhead Door Corporation; << **Model 418**; **Model 422**; **Model 426**; or **Model 432**>>.

- 1. Panels: Steel construction with exterior sheet, interior sheet, and core reinforcement.
- 2. Width: << **feet** **inches (** **m)**>>.
- 3. Height: << **feet** **inch (** **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**; or **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, 0.0236 inch (0.599 mm)**; **24 gauge, 0.0216 inch (0.549 mm)**; or **26 gauge, 0.0187 inch (0.475 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. Insulation: Expanded polystyrene.
 - 1) Panel R-value (RSI-value): << 7.35 (1.29)>>.
 - 2) Interior Backer: << 25 gauge, 0.0184 inch (0.47 mm) painted steel; Polybonded laminate; or High impact polystyrene>>.

- f. Exterior Surface Profile: << Flush; or Ribbed>>.

- g. Lites: << Not required; Aluminum sash section lites with double strength billet (DSB) glazing; or Insulated double strength billet (DSB) vision lites>>.
 - 1) Glazing: << 1/8 inch (3 mm) double strength billet glass; 1/2 inch (13 mm) double strength billet glass; 1/8 inch (3 mm) tempered double strength billet glass; 1/4 inch (6 mm) tempered double strength billet glass; 1/2 inch (13 mm) tempered double strength billet 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; or 1/4 inch (6 mm) wired glass>>.

- h. Exterior Finish: << White smooth; Brown smooth; or Powder coat smooth>>.
- 10. Locking Options to Include: << None; Slide lock; or Cylinder>>.
 - a. Lock Locations: << Both jambs; Left only; or Right only>>.
- 11. Weatherstripping and Seals: << Required; or Not required>>.
- 12. Tracks: Constructed of steel with members fully bolted together.
 - a. Size: << 2 inches (51 mm); or 3 inches (76 mm)>>.
 - b. Finish: Galvanized steel.
- 13. End Stiles: << 16 gauge, 0.0635 inch (1.613 mm)>> galvanized steel.
- 14. Intermediate Stiles: << 16 gauge, 0.0635 inch (1.613 mm)>> 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; or 100,000>> cycles.

- 17. Manual Operation: << Push-up; or 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**; or **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; or 400V 3 phase 50Hz**>>.
 - c. Signaling Device: << **Horn and strobe combination**; or **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**; or **Trolley**>>, << **right-hand side**; **left-hand side**; or **center**>>.
 - f. Motor Enclosure: << **Not required**; **NEMA 4-12 watertight and oiltight**; **NEMA 4X corrosion-resistant**; **Totally enclosed, fan-cooled motor**; or **Totally enclosed, non-ventilated**>>.
 - 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**; or **Door provided with wired monitored electric safety edge**>>.

- D. WindStorm Sectional Doors: Overhead Door Corporation; << **Model 421**; **Model 423**; **Model 427**; **Model 429**; **Model 434**; or **Model 436**>>.
 1. Panels: << **Steel construction with exterior sheet, interior sheet, and core reinforcement**; or **Steel construction with exterior sheet**>>.

 2. Width: << **feet** **inches (** **m)**>>.

 3. Height: << **feet** **inch (** **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**; or **Not required**>>.

- 10. Operation Cycles: Capable of operating for minimum << **10,000**; **25,000**; **50,000**; **75,000**; or **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, 0.0336 inch (0.853 mm)**; or **Nominal 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**; or **Polystyrene**>>.
 - 1) Panel R-value (RSI-value): << **7.64 (1.35)**>>.
 - 2) Interior Backer: << **Not required**; **Galvanized steel**; or **High impact polystyrene**>>.

 - f. Exterior Surface Profile: << **Smooth**; **Ribbed**; or **Stucco embossed**>>.

 - g. Lites: << **Not required**; **Full view lites**; **Vision lites**; or **Impact lites**>>.

 - h. Exterior Finish: << **White**; or **Brown**>>.
- 13. Locking Options to Include: << **None**; **Slide lock**; or **Cylinder**>>.
 - a. Lock Locations: << **Both jambs**; **Left only**; or **Right only**>>.
- 14. Weatherstripping and Seals: << **Required**; or **Not required**>>.
- 15. Tracks: Constructed of steel with members fully bolted together.
 - a. Size: << **2 inches (51 mm)**; or **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; or 100,000**>> cycles.

20. Manual Operation: << **Push-up; or 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; or 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; or 400V 3 phase 50Hz**>>.
 - c. Signaling Device: << **Horn and strobe combination; or 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; or Trolley**>>, << **right-hand side; left-hand side; or center**>>.
 - f. Motor Enclosure: << **Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; or Totally enclosed, non-ventilated**>>.
 - 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; or Door provided with wired monitored electric safety edge**>>.

E. Insulated Steel-Back Sectional Doors: Overhead Door Corporation; Model 470.

1. Panels: Steel construction with exterior sheet, interior sheet, and core reinforcement.

2. Width: << feet inches (m)>>.

3. Height: << feet inch (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**)>>.
8. Wind Load: Not required.

9. Operation Cycles: Capable of operating for minimum << **10,000; 25,000; 50,000; 75,000; or 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:
 - a. Exterior Steel Thickness: << **25 gauge, 0.018 inch (0.46 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: Bonded polystyrene.
 - 1) Panel R-value (RSI-value): << **9.83 (1.73)**>>.
 - 2) Interior Backer: Painted galvanized steel, << **30 gauge, 0.011 inch (0.28 mm)**>>.
 - f. Exterior Surface Profile: Ribbed.
 - g. Lites: << **Not required; Double thermal acrylic; Insulated double strength billet (DSB); Clear short; or Clear long**>>.

 - h. Exterior Finish: << **White; Almond; Brown; Sandstone; or Desert Tan**>>.
12. Locking Options to Include: << **None; Slide lock; or Cylinder**>>.
 - a. Lock Locations: << **Both jambs; Left only; or Right only**>>.
13. Weatherstripping and Seals: << **Required; or Not required**>>.
14. Tracks: Constructed of steel with members fully bolted together.
 - a. Finish: Galvanized steel.
15. End Stiles: << **20 gauge, 0.032 inch (0.81 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; or 100,000**>> cycles.

18. Manual Operation: << **Push-up; or 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**; or **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; or 400V 3 phase 50Hz**>>.
 - c. Signaling Device: << **Horn and strobe combination**; or **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**; or **Trolley**>>, << **right-hand side**; **left-hand side**; or **center**>>.
 - f. Motor Enclosure: << **Not required**; **NEMA 4-12 watertight and oiltight**; **NEMA 4X corrosion-resistant**; **Totally enclosed, fan-cooled motor**; or **Totally enclosed, non-ventilated**>>.
 - 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**; or **Door provided with wired monitored electric safety edge**>>.

F. Thermacore Steel Sectional Doors: Overhead Door Corporation; << **Model 591**; **Model 592**; **Model 593**; **Model 594**; **Model 596**; **Model 598**; **Model 599**; or **Model 850**>>.

1. Panels: Steel construction with exterior sheet, interior sheet, and core reinforcement.
2. Width: << **feet** **inches (** **m)**>>.
3. Height: << **feet** **inch (** **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. 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)**; or **0.46 cfm/sq ft (8.40 cu m/hr/sq m)**>>.

8. U-Factor: << **0.07; 0.10; 0.13; 0.15; or 0.20**>>.

9. R-value (RSI-value): << **26 (4.58); 17.40 (3.09); 14.86 (2.63); 12.76 (2.26); or 9.31 (1.64)**>>.

10. STC Rating: << **Class 22; Class 26; or Not applicable**>>.

11. Operation Cycles: Capable of operating for minimum << **10,000; 25,000; 50,000; 75,000; or 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: One year.
13. Panel Material:
 - a. Exterior Steel Thickness: << **0.012 inch (0.30 mm); 0.015 inch (0.38 mm); or 0.033 inch (0.84 mm)**>> galvanized steel.

 - b. Panel Thickness: << **3 inches (76 mm); 2 inches (51 mm); 1-5/8 inches (41 mm); 1-3/8 inches (35 mm); or 1 inch (25 mm)**>>.

 - c. Joint Profile: << **Tongue and groove; or Shiplap**>>.
 - d. Section Height: Manufacturer's standard based on door height.

 - e. Exterior Surface Profile: << **Flush; Microgroove; Raised panel; or Ribbed**>>.

- f. Lites: << **Not required**; Double thermal acrylic; Aluminum sash section with double strength billet (DSB) glazing; Insulated double strength billet (DSB); Clear long lites; or Large lites>>.

 - g. Exterior Finish: << **White**; Tan; Gray; Almond; Industrial Brown; Black; Sandstone; Forest Green; Chestnut Brown; Terra Bronze; Desert Tan; Trinar White; Trinar Brown; or Trinar Beige>>.
14. Locking Options to Include: << **None**; Slide lock; or Cylinder>>.
 - a. Lock Locations: << **Both jambs**; Left only; or Right only>>.
 15. Weatherstripping and Seals: << **Required**; or Not required>>.
 16. Tracks: Constructed of steel with members fully bolted together.
 - a. Size: << **2 inches (51 mm)**; or 3 inches (76 mm)>>.
 - b. Finish: Mill finish.

 17. End Stiles: << **14 gauge, 0.0785 inch (1.99 mm)**; single 16 gauge, 0.0635 inch (1.613 mm); double 16 gauge, 0.0635 inch (1.613 mm); 0.055 inch (1.410 mm); or 0.0356 inch (0.904 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; or 100,000>> cycles.

 20. Manual Operation: << **Push-up**; or 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**; or 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; or 400V 3 phase 50Hz>>.
 - c. Signaling Device: << **Horn and strobe combination**; or 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**; or Trolley>>, << **right-hand side**; left-hand side; or center>>.
 - f. Motor Enclosure: << **Not required**; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; or Totally enclosed, non-ventilated>>.
 - 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; or Door provided with wired monitored electric safety edge>>.
- G. Thermacore Windstorm Steel Sectional Doors: Overhead Door Corporation; << **Model 515**; or **Model 525**>>.
1. Panels: Steel construction with exterior sheet, interior sheet, and core reinforcement.
 2. Width: << **feet** **inches (** **m)**>>.
 3. Height: << **feet** **inch (** **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. Air Infiltration at << **15 mph (24 km/hr)**>>: << **0.23 cfm/sq ft (4.20 cu m/hour/sq m)**; or **0.07 cfm/sq ft (1.28 cu m/hour/sq m)**>>.
 8. U-Factor: << **0.12**; or **0.15**>>.
 9. R-value (RSI-value): << **12.12 (2.13)**; or **16.22 (2.85)**>>.
 10. STC Rating: Class 20.
 11. Operation Cycles: Capable of operating for minimum << **10,000**; **25,000**; **50,000**; **75,000**; or **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: << **0.015 inch (0.38 mm)**>> galvanized steel.

- b. Panel Thickness: << **1-3/8 inches (35 mm)**; or **1-7/8 inches (48 mm)**>>.
 - c. Joint Profile: Tongue and groove.
 - d. Section Height: Manufacturer's standard based on door height.
-
- e. Exterior Surface Profile: << **Embossed wood grain**; or **Stucco embossed pinstripe**>>.
-
- f. Panel Profile: << **Standard**; **V5 panel**; **Long panel**; **Flush panel**; or **V10 panel**>>.
-
- g. Lites: << **Not required**; or _____>>.
-
- 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**; or **Black textured finish**>>.
- 14. Locking Options to Include: << **None**; **Slide lock**; or **Cylinder**>>.
 - a. Lock Locations: << **Both jambs**; **Left only**; or **Right only**>>.
 - 15. Weatherstripping and Seals: << **Required**; or **Not required**>>.
 - 16. Tracks: Constructed of steel with members fully bolted together.
 - a. Size: << **2 inches (51 mm)**; or **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**; or **100,000**>> cycles.
-
- 21. Manual Operation: << **Push-up**; or **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**; or **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; or 400V 3 phase 50Hz**>>.
- c. Signaling Device: << **Horn and strobe combination; or 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; or Trolley**>>, << **right-hand side; left-hand side; or center**>>.
- f. Motor Enclosure: << **Not required; NEMA 4-12 watertight and oiltight; NEMA 4X corrosion-resistant; Totally enclosed, fan-cooled motor; or Totally enclosed, non-ventilated**>>.
- 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; or Door provided with wired monitored electric safety edge**>>.

2.03 UPWARD ACTING SECTIONAL ALUMINUM DOORS

- A. Aluminum Sectional Doors: Overhead Door Corporation; << **Model 511; Model 521; or Model 522**>>.
 - 1. Panels: Aluminum construction and reinforcement.
 - 2. Width: << **feet** **inches (** **m)**>>.
 - 3. Height: << **feet** **inch (** **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: << **Not required; 0.30; or 0.28**>>.
 - 8. R-value (RSI-value): << **2.60 (0.46); 2.75 (0.48); 2.87 (0.51); 2.93 (0.52); 3.17 (0.56); 3.21 (0.57); 3.43 (0.60); 3.48 (0.61); or 4.09 (0.72)**>>.

9. Operation Cycles: Capable of operating for minimum << **10,000; 25,000; 50,000; 75,000; or 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); or 1-3/4 inches (45 mm)**>>.
 - b. Joint Profile: << **Tongue and groove; or Shiplap**>>.
 - 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; or 1/4 inch (6 mm) translucent black**>>.
 - e. Exterior Finish: << **Clear anodized; Light bronze anodized; Medium bronze anodized; Dark bronze anodized; Black anodized; or Powder coat; color: _____**>>.
12. Locking Options to Include: << **None; Slide lock; or Cylinder**>>.
 - a. Lock Locations: << **Both jambs; Left only; or Right only**>>.
13. Weatherstripping and Seals: << **Required; or Not required**>>.
14. Tracks: Constructed of steel with members fully bolted together.
 - a. Size: << **2 inches (51 mm); or 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; or 100,000**>> cycles.
17. Manual Operation: << **Push-up; or 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**; or **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; or 400V 3 phase 50Hz**>>.
 - c. Signaling Device: << **Horn and strobe combination**; or **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**; or **Trolley**>>, << **right-hand side**; **left-hand side**; or **center**>>.
 - f. Motor Enclosure: << **Not required**; **NEMA 4-12 watertight and oiltight**; **NEMA 4X corrosion-resistant**; **Totally enclosed, fan-cooled motor**; or **Totally enclosed, non-ventilated**>>.
 - 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**; or **Door provided with wired monitored electric safety edge**>>.

B. Aluminum Sectional Doors: Overhead Door Corporation; Model 521S.

1. Panels: Aluminum construction and reinforcement.
2. Width: << feet inches (m)>>.
3. Height: << feet inch (m)>>.
4. Mounting: Surface mounted on interior of building.
5. Opening Speed: Door to operate at speed of << **15.7 inches (399 mm)**>> per second.
6. Closing Speed: Door to operate at speed of << **10.4 inches (264 mm)**>> per second.
7. U-Factor: << **0.30**; or **0.28**>>.
8. R-value (RSI-value): << **2.60 (0.46)**; **2.75 (0.48)**; **2.87 (0.51)**; **2.93 (0.52)**; **3.17 (0.56)**; **3.21 (0.57)**; **3.43 (0.60)**; **3.48 (0.61)**; or **4.09 (0.72)**>>.

9. Operation Cycles: Capable of operating for minimum 300,000 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: << **1-3/4 inches (45 mm)**>>.
 - b. Joint Profile: Shiplap.
 - 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; or 1/2 inch (13 mm) polycarbonate>>.
 - e. Exterior Finish: << **Clear anodized**; Light bronze anodized; Medium bronze anodized; Dark bronze anodized; Black anodized; or Powder coat; color: _____>>.
12. Locking Options to Include: << **None**; Slide lock; or Cylinder>>.
 - a. Lock Locations: << **Both jambs**; Left only; or Right only>>.
13. Weatherstripping and Seals: << **Required**; or Not required>>.
14. Tracks: Constructed of steel with members fully bolted together.
 - a. Size: << **2 inches (51 mm)**; or 3 inches (76 mm)>>.
 - b. Finish: Galvanized steel.
15. Brackets: Steel to support counterbalance and curtain.
 - a. Finish: Hot-dip galvanized.
16. Manual Operation: Chain Hoist.
17. Motor Operation: Provide UL-listed direct drive, integrated gear motor and brake 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. Provide operator and drive assembly with all wiring harnesses needed from manufacturer.
 - a. Timer to Close: Automatic closing controlled by adjustable hold-open time delay.
 - b. Operation Supply Voltage: << **208V 1 phase 60 Hz, 190 to 207V range**; 208V 3 phase 60 Hz, 190 to 207V range; 230V 1 phase 60 Hz, 208 to 245V range; 230V 3 phase 60 Hz, 208 to 245V range; 460V 3 phase 60 Hz, 456 to 495V range; or 575V 3 phase 60 Hz>>.
 - c. Control Panel: << **Medium BTR Control**; or Full BTR Control>> Electronic controller with microprocessor self-diagnostics. Digital readout indicates door action, alarm conditions and fault conditions.

- d. Signaling Device: << **Horn and strobe combination**; **Traffic warning light; or LED Lights**>>.
- e. Actuation Device: Provide << **push button**; **key switch**; **vehicle detection**; **loop detector**; **motion detector**; **treadle switch**; **radio control**; **door timer**; and **photocell operation**>>.
- f. Motor Mounting: Shaft mount.
- g. Obstruction Safety Detection:
 - 1) Primary, Monitored:
 - (a) Safety Edge: << **Wireless electric sensing edge**; or **2-wire sensing edge**>> complying with <<UL 325>>, 2010 edition.
 - 2) Secondary, Non-Monitored:
 - (a) Photoelectric Sensors: << **Reflective**; **Dual**; or _____>>.

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)**; or _____ inch (____ mm)>>.
- B. Maximum Variation from Level: << **1/16 inch (1.5 mm)**; or _____ inch (____ mm)>>.
- C. Longitudinal or Diagonal Warp: Plus or minus << **1/8 inch in 10 feet (3 mm in 3 m)**; or _____ 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;** _____; or **None - N/A**>>.
- C. Remove<< **temporary;** _____; or **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