

The Genuine. The Original.



SECTION 08330

ROLLING SERVICE DOORS

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Rolling service doors.
- B. Insulated rolling service doors.
- C. Rolling sheet doors.
- D. Springless rolling service doors
- E. Advanced performance rolling service doors.
- F. Rolling steel storm shelter doors.
- G. Rolling security shutters.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Support framing and framed opening.
- B. Section 06200 - Finish Carpentry: Wood jamb and head trim.
- C. Section 08333 - Security Grilles.
- D. Section 08710 - Door Hardware: Product Requirements for cylinder core and keys.
- E. Section 09900 - Painting: Field applied finish.
- F. Section 16130 - Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station.
- G. Section 16150 - Wiring Connections: Power to disconnect.

1.3 REFERENCES

- A. ANSI/DASMA 108 - American National Standards Institute Standard Method For Testing Sectional Garage Doors And Rolling Doors: Determination Of Structural Performance Under Uniform Static Air Pressure Difference.
- B. NFRC 102 - Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems.
- C. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.
- D. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- E. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- F. ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- G. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- H. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- I. **ASTM F 3038** - Standard Test Method for Timed Evaluation of Forced-Entry-Resistant Systems
- J. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- K. NEMA MG 1 - Motors and Generators.
- L. NIJ Standard 0108.01 - Ballistic Resistant Protective Materials
- M. ICC-500-2014, Standard for the Design and Construction of Storm Shelters
- N. ICC-500-2020, Standard for the Design and Construction of Storm Shelters
- O. FEMA P-361, Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms
- P. NFPA 252 - Fire Tests of Fire Door Assemblies.
- Q. UL 10B - Fire Tests of Fire Door Assemblies.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

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

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. Details of construction and fabrication.
 - 4. Installation instructions.
- C. Shop Drawings: Include detailed plans, elevations, details of framing members, anchoring methods, required clearances, hardware, and accessories. Include relationship with adjacent construction.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- G. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years experience in the fabrication and installation of security closures.
- B. Installer Qualifications: Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 COORDINATION

- A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.10 WARRANTY

- A. Warranty: Manufacturer's limited door and operator system, to be free from defects in materials and workmanship for 3 years or 500,000 cycles, whichever occurs first.
- B. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 3 years or 20,000 cycles, whichever occurs first.
- C. Warranty: Manufacturer's limited door warranty for 5 years on door system materials and workmanship.

Rolling steel storm shelter doors

- D. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 2 years or 10,000 cycles, whichever occurs first.

Rolling steel Storm Shelter and Forced Entry rated doors

- E. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 2 years or 10,000 cycles, whichever occurs first.

Rolling steel Storm Shelter and Fire Rated doors

- F. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 2 years or 10,000 cycles, whichever occurs first.

rolling steel storm shelter doors

- G. Warranty: Manufacturer's limited door system warranty for 1 years for all parts and components.
- H. Warranty: Manufacturer's limited door system warranty for 2 years for all parts and components. Manufacturer's limited operator warranty covers motor/gearbox – limited lifetime, accessories 1 year, core unit parts 2 years, and other parts and components 1 year.
- I. PowderGuard Finish
 1. PowderGuard Premium Applied to curtain, guides, bottom bar, headplates: Manufacturer's limited Premium Finish warranty for 2 years.
 2. PowderGuard Zinc Base Coat applied to guides, bottom bar, headplates plus PowderGuard Premium applied to curtain and top coat for guides, bottom bar, headplates: Manufacturer's limited Zinc Finish warranty for 4 years.
 3. PowderGuard Textured: Applied to curtain, guides, bottom bar, headplates: Manufacturer's limited Textured Finish warranty for 3 years.
 4. PowderGuard Zinc Base Coat applied to guides, bottom bar, headplates plus PowderGuard Textured applied to curtain and top coat for guides, bottom bar, headplates: Manufacturer's limited Zinc Finish warranty for 4 years.

5. PowderGuard Max: Applied to curtain, guides, bottom bar, headplates: Manufacturer's limited Max Finish warranty for 5 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Overhead Door™ Brand, 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 ROLLING SERVICE DOORS

- A. Light Commercial Doors: Overhead Door™ Brand, Model 600 Coil-Away Rolling Service Doors.
 1. Curtain: Interlocking roll-formed galvanized steel slats, flat crown profile type CAW, 26 gauge for widths up to 12 feet 4 inches (3.75 m), 24 gauge for widths up to 16 feet (4.88 m). End of each slat shall be locked from lateral movement by a staking lock system. (Galvanized alternate malleable end locks.)
 2. Finish:
 - a. Curtain slats and hood shall be galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) White polyester.
 - (b) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium: Powder coat color as selected by the Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 3. Weatherseals: Vinyl bottom seal.
 4. Bottom Bar: Extruded aluminum.
 5. Guides: Roll-formed galvanized steel shapes attached to continuous galvanized steel wall angle.
 - a. Finish: PowderGuard Premium powder coat, color as selected by Architect.
 6. Brackets: Galvanized steel to support counterbalance and curtain.
 - a. Finish: PowderGuard Premium powder coat, color as selected by Architect.
 7. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel and supporting the curtain with deflection limited to 0.03 inch per foot of span. Spring tension shall be adjustable.
 8. Hood: Not Required.
 9. Hood: 24 gauge galvanized steel with intermediate supports as required.
 10. Manual Operation:

- a. Manual push up for doors up to 100 SF.
- b. Chain hoist for doors over 100 SF.
- 11. Electric Motor Operation: Provide UL listed electric operator, size 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. Sensing Edge Protection:
 - 1) N/A.
 - 2) Electric sensing edge.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - d. Motor Voltage: 115-230 single phase, 60 Hz.
- 12. Wind load Design:
 - a. FBC certification FL#_____.
- 13. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
- 14. Locking:
 - a. Two interior bottom bar slide bolts for manually operated doors.
 - b. Exterior slide lock for manually operated mini-warehouse doors.
 - c. Chain keeper locks for chain hoist operation.
 - d. Interior slide bolt lock for electric operation.
 - e. Cylinder lock for electric operation.
- 15. Wall Mounting Condition: Face-of-wall.

B. Industrial Doors: Overhead Door™ Brand, Model 610 Rolling Service Doors.

- 1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
 - a. Curved profile type C-187 for doors up to 15 feet 4 inches (4.67 m) wide, fabricated of:
 - 1) 24 gauge galvanized steel.
 - 2) 22 gauge galvanized steel.
 - 3) 20 gauge galvanized steel.
 - 4) 18 gauge galvanized steel.
 - 5) 22 gauge stainless steel.
 - 6) 20 gauge stainless steel.
 - 7) .040 inch (1 mm) aluminum.
 - b. Curved profile type C-275 for doors up to and between 15 feet 4 inches (4.67 m) and 18 feet 4 inches (5.59 m) wide, fabricated of:
 - 1) 22 gauge galvanized steel.
 - 2) 20 gauge galvanized steel.

- 3) 18 gauge galvanized steel.
 - 4) 16 gauge galvanized steel.
 - 5) 22 gauge stainless steel.
 - 6) 20 gauge stainless steel.
 - 7) .050 inch (1.29 mm) aluminum.
 - c. Curved profile type C-275 for doors between 18 feet 4 inches (5.59 m) and 25 feet 4 inches (7.72 m) wide, fabricated of:
 - 1) 20 gauge galvanized steel.
 - 2) 18 gauge galvanized steel.
 - 3) 16 gauge galvanized steel.
 - 4) 20 gauge stainless steel.
 - 5) .064 inch (1.63 mm) aluminum.
 - d. Curved profile type C-275 for doors between 25 feet 4 inches (7.72 m) and 40 feet (12.19 m) wide, fabricated of:
 - 1) 18 gauge galvanized steel.
 - 2) 16 gauge galvanized steel.
 - 3) .064 inch (1.63 mm) aluminum. Maximum width is 27 feet.
 - e. Flat profile type F-265 for doors up to 18 feet 4 inches (5.59 m) wide, fabricated of:
 - 1) 22 gauge galvanized steel.
 - 2) 20 gauge galvanized steel.
 - 3) 18 gauge galvanized steel.
 - 4) 16 gauge galvanized steel.
 - 5) 22 gauge stainless steel.
 - 6) 20 gauge stainless steel.
 - 7) .040 inch (1 mm) aluminum.
 - f. Flat profile type F-265 for doors between 18 feet 4 inches (5.59 m) and 25 feet 4 inches (7.72 m) wide, fabricated of:
 - 1) 20 gauge galvanized steel.
 - 2) 18 gauge galvanized steel.
 - 3) 16 gauge galvanized steel.
 - 4) 20 gauge stainless steel.
 - 5) .050 inch (1.29 mm) aluminum.
 - g. Flat profile type F-265 for doors between 25 feet 4 inches (7.72 m) and 40 feet (12.19 m) wide, fabricated of:
 - 1) 18 gauge galvanized steel.
 - 2) 16 gauge galvanized steel.
 - 3) .050 inch (1.29 mm) aluminum. Maximum width is 27 feet.
 - h. For fenestrated service doors, provide slats with 3 inches by 5/8 inch (76 mm by 16 mm) uniformly spaced openings.
 - i. For ventilated service doors, provide slats with 1/16 inch (16 mm) diameter perforations 3/32 inch (2.4 mm) on center staggered rows.
2. Slats and Hood Finish:
- a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) Gray polyester.
 - (b) Tan polyester.
 - (c) White polyester.
 - (d) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium powder coat, color as selected by the Architect.

- (b) PowderGuard Textured powder coat, color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - b. Stainless Steel: Slats and hood shall be stainless steel finished as follows.
 - 1) Finish: 2B mill finish.
 - 2) Finish: No. 4 satin finish.
 - c. Aluminum: Slats and hood shall be aluminum finished as follows.
 - 1) Finish: Mill finish.
 - 2) Finish: Clear anodized finish.
 - 3) Finish: Bronze anodized finish.
 - 4) Finish: Powder Coat:
 - (a) PowderGuard Premium powder coat, color as selected by the Architect.
 - (b) PowderGuard Textured powder coat, color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
3. Weatherseals:
- a. Vinyl bottom seal.
 - b. Guide weatherseal.
4. Bottom Bar:
- a. Extruded aluminum for doors up to 15 feet 4 inches (4.67 m) wide.
 - b. Two primed steel angles for doors over 15 feet 4 inches (4.67 m) wide.
 - c. Two galvanized steel angles.
5. Guides: Three structural steel angles.
6. Brackets:
- a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
7. Finish; Bottom Bar, Guides and Brackets:
- a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect.
8. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
9. Hood:
- a. 24 gauge galvanized steel with intermediate supports as required.
 - b. Stainless steel, 24 gauge hood with intermediate supports as required.
 - c. Aluminum hood with intermediate supports as required.
10. Manual Operation:
- a. Manual push up for doors up to 96 SF.
 - b. Chain hoist for doors up to 96 SF.
 - c. Chain hoist for doors over 96 SF.
 - d. Crank operation.
11. Electric Motor Operation: Provide UL listed electric operator, size 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. Sensing Edge Protection:
 - 1) Pneumatic sensing edge.
 - 2) Electric sensing edge.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - d. Motor Voltage: 115-230 single phase, 60 Hz.
12. Wind Load Design:
- a. Standard wind load shall be 20 PSF.
 - b. Miami-Dade County NOA ____.
 - c. FBC certification FL#_____.
 - d. TDI approval # _____.
13. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
14. Locking:
- a. Two interior bottom bar slide bolts for manually operated doors.
 - b. Chain keeper locks for chain hoist operation.
 - c. Interior slide bolt lock for electric operation with interlock switch.
 - d. Cylinder lock.
15. Wall Mounting Condition:
- a. Face-of-wall mounting.
 - b. Between jambs mounting.
16. Vision Lites: Provide with 3 inches by 5/8 inch (76 mm by 16 mm) uniformly spaced openings.
- a. Provide open with no cover.
 - b. Provide with Plexiglas covers over openings.
- C. Heavy Duty Industrial Doors: Overhead Door™ Brand, Model 620 Stormtite Rolling Service Doors.
1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
- a. Flat profile type F-265 for doors up to 18 feet 4 inches (5.59 m) wide, fabricated of:
 - 1) 22 gauge galvanized steel.
 - 2) 20 gauge galvanized steel.
 - 3) 18 gauge galvanized steel.
 - 4) 16 gauge galvanized steel.
 - 5) 22 gauge stainless steel.
 - 6) 20 gauge stainless steel.
 - 7) .040 inch (1 mm) aluminum.

- b. Flat profile type F-265 for doors between 18 feet 4 inches (5.59 m) and 25 feet 4 inches (7.72 m) wide, fabricated of:
 - 1) 20 gauge galvanized steel.
 - 2) 18 gauge galvanized steel.
 - 3) 16 gauge galvanized steel.
 - 4) 20 gauge stainless steel.
 - 5) .050 inch (1.29 mm) aluminum.
 - c. Flat profile type F-265 for doors between 25 feet 4 inches (7.72 m) and 40 feet (12.19 m) wide, fabricated of:
 - 1) 18 gauge galvanized steel.
 - 2) 16 gauge galvanized steel.
 - 3) .050 inch (1.29 mm) aluminum. (Maximum width of 27 feet (8.23 m)).
2. Slats and Hood Finish:
- a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) Gray polyester.
 - (b) Tan polyester.
 - (c) White polyester.
 - (d) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Textured powder coat color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - b. Stainless Steel: Slats and hood shall be stainless steel finished as follows.
 - 1) Finish: 2B mill finish.
 - 2) Finish: No. 4 satin finish.
 - c. Aluminum: Slats and hood shall be aluminum finished as follows.
 - 1) Finish: Mill finish.
 - 2) Finish: Clear anodized finish.
 - 3) Finish: Bronze anodized finish.
 - 4) Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Textured powder coat color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
3. Weatherseals:
- a. Vinyl bottom seal, exterior guide and internal hood seals.
 - b. Interior guide weatherseal.
 - c. Lintel weatherseal.
4. Bottom Bar:
- a. Extruded aluminum for doors up to 15 feet 4 inches (4.67 m) wide.
 - b. Two primed steel angles for doors over 15 feet 4 inches (4.67 m) wide.
 - c. Two galvanized steel angles.
5. Guides: Three structural steel angles.

6. Brackets:
 - a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
7. Finish; Bottom Bar, Guides, Headplate and Brackets:
 - a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect.
8. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
9. Hood: Provide with internal hood baffle weatherseal.
 - a. 24 gauge galvanized steel with intermediate supports as required.
 - b. Stainless steel, 24 gauge hood with intermediate supports as required.
 - c. Aluminum hood with intermediate supports as required.
10. Manual Operation:
 - a. Manual push up for doors up to 96 SF.
 - b. Chain hoist for doors up to 96 SF.
 - c. Chain hoist for doors over 96 SF.
 - d. Crank operation.
11. Electric Motor Operation: Provide UL listed electric operator, size 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. Sensing Edge Protection:
 - 1) Pneumatic sensing edge.
 - 2) Electric sensing edge.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - d. Motor Voltage: 115-230 single phase, 60 Hz.
12. Wind Load Design:
 - a. Standard wind load shall be 20 PSF.
 - b. Miami-Dade County NOA ____.
 - c. FBC certification FL# ____.
 - d. TDI Approval # ____.

13. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
14. Locking:
 - a. Two interior bottom bar slide bolts for manually operated doors.
 - b. Interior bottom bar slide bolt with chain hoist operation.
 - c. Chain keeper locks for chain hoist operation.
 - d. Interior slide bolt lock for electric operation with interlock switch.
 - e. Cylinder lock for electric operation with interlock switch.
15. Wall Mounting Condition:
 - a. Face-of-wall mounting.
 - b. Between jambs mounting.
16. Vision Lites: Provide with uniformly spaced openings.
 - a. Size: 3 inch by 5/8 inch (76 mm by 16 mm).
 - b. Size: 10 inch by 1 inch (254 mm by 25.4 mm)
 - c. Provide open with no cover.
 - d. Provide with Plexiglas covers over openings.

2.3 INSULATED ROLLING SERVICE DOORS

- A. Stormtite Insulated Rolling Service Doors: Overhead Door™ Brand Model 625.
 1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
 - a. Flat profile type F-265i for doors up to 40 feet (12.19 m) wide.
 - b. Front slat fabricated of:
 - 1) 24 gauge galvanized steel.
 - 2) 22 gauge galvanized steel.
 - 3) 20 gauge galvanized steel.
 - 4) 18 gauge galvanized steel.
 - 5) 22 gauge stainless steel.
 - 6) 20 gauge stainless steel.
 - 7) Aluminum .040 inch (1 mm).
 - c. Back slat fabricated of:
 - 1) 24 gauge galvanized steel.
 - 2) 22 gauge galvanized steel.
 - 3) 24 gauge stainless steel.
 - 4) Aluminum .024 inch (.06 mm).
 - d. Slat cavity filled with CFC-free foamed-in-place, polyurethane insulation.
 - 1) R-Value: 7.7, U-Value: 0.13.
 - 2) Sound Rating: STC-21.
 2. Performance:
 - a. Through Curtain Sound Rating: Sound Rating: STC-28 (STC-30+ with HZ noise generator) as per ASTM E 90.
 - b. Installed System Sound Rating: STC-21 as per ASTM E 90.
 - c. U-factor: 0.91 NFRC test report, maximum U-factor of no higher than 1.00.
 - d. Air Infiltration: Meets ASHRAE 90.1 & IECC 2012/2015 C402.4.3 Air leakage <1.00 cfm/ft².
 3. Slats and Hood Finish:
 - a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) Gray polyester.
 - (b) Tan polyester.

- (c) White polyester.
 - (d) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Textured powder coat color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - b. Stainless Steel: Slats and hood shall be stainless steel finished as follows.
 - 1) Finish: 2B mill finish.
 - 2) Finish: No. 4 satin finish.
 - c. Aluminum: Slats and hood shall be aluminum finished as follows.
 - 1) Finish: Mill finish.
 - 2) Finish: Clear anodized finish.
 - 3) Finish: Bronze anodized finish.
 - 4) Finish: Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Textured powder coat color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
4. Weatherseals:
- a. Vinyl bottom seal, exterior guide and internal hood seals.
 - b. Interior guide weatherseal.
 - c. Lintel weatherseal.
 - d. Air Infiltration Package, IECC 2012/2015 listed; product to meet C402.4.3 2012 Air leakage <1.00 cfm/ft².
 - 1) Air infiltration perimeter seal package includes: guide cover, guide cap, dual brush exterior guide seal, 4 inch finned lintel brush seal and vinyl bottom seal.
5. Bottom Bar:
- a. Two prime painted steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
 - b. Two galvanized steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
 - c. Two stainless steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
 - d. Extruded aluminum angle minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
6. Guides: Three structural steel angles.
7. Brackets:
- a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
 - c. Stainless steel to support counterbalance, curtain and hood.
8. Finish; Bottom Bar, Guides, Headplate and Brackets:
- a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.

- e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect.
9. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
10. Hood: Provide with internal hood baffle weatherseal.
- a. 24 gauge galvanized steel with intermediate supports as required.
 - b. Stainless steel, 24 gauge hood with intermediate supports as required.
 - c. Aluminum hood with intermediate supports as required.
11. Manual Operation:
- a. Chain hoist.
 - b. Crank operation.
12. Electric Motor Operation: Provide UL listed electric operator, size 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. Sensing Edge Protection:
 - 1) Pneumatic sensing edge.
 - 2) Electric sensing edge.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - d. Motor Voltage: 115-230 single phase, 60 Hz.
13. Wind Load Design:
- a. Standard wind load shall be 20 PSF.
 - b. Miami-Dade County NOA ____.
 - c. FBC certification FL# ____.
 - d. TDI Approval # ____.
14. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
15. Locking:
- a. Chain keeper locks for chain hoist operation.
 - b. Interior slide bolt lock for electric operation with interlock switch.
 - c. Cylinder lock for electric operation with interlock switch.
16. Wall Mounting Condition:
- a. Face-of-wall mounting.
 - b. Between jambs mounting.
17. Insulated Vision Lites: Provide with uniformly spaced openings.
- a. Size: 3 inch by 5/8 inch (76 mm by 16 mm)
 - b. Size: 10 inch by 1 inch (254 mm by 25.4 mm)
 - c. Provide with dual wall polycarbonate lites.

- B. Stormtite Advanced Performance Insulated Rolling Service Doors: Overhead Door™ Brand Stormtite AP Model 627.
1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
 - a. Flat profile type FIT-265 for doors up to 40 feet (12.19 m) wide.
 - b. Front slat fabricated of:
 - 1) 24 gauge galvanized steel.
 - 2) 22 gauge galvanized steel.
 - 3) 20 gauge galvanized steel.
 - 4) 18 gauge galvanized steel.
 - 5) 22 gauge stainless steel.
 - 6) Aluminum .040 inch (1 mm).
 - c. Back slat fabricated of:
 - 1) 24 gauge galvanized steel.
 - 2) 24 gauge stainless steel.
 - 3) Aluminum .024 inch (.06 mm).
 - d. Slat cavity filled with CFC-free foamed-in-place, polyurethane insulation.
 - 1) R-Value: 10.9, U-Value: 0.09.
 2. Performance:
 - a. Through Curtain Sound Rating: Sound Rating: STC-28 (STC-30+ with HZ noise generator) as per ASTM E 90.
 - b. Installed System Sound Rating: STC-21 as per ASTM E 90.
 - c. U-factor: 0.84 NFRC test report, maximum U-factor of no higher than 1.00.
 - d. Air Infiltration: Meets ASHRAE 90.1 and IECC 2012/2015 C402.4.3 Air leakage <1.00 cfm/ft².
 3. Slats and Hood Finish:
 - a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) Gray polyester.
 - (b) Tan polyester.
 - (c) White polyester.
 - (d) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Textured powder coat color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - b. Stainless Steel: Slats and hood shall be stainless steel finished as follows.
 - 1) Finish: No. 4 satin finish.
 - c. Aluminum: Slats and hood shall be aluminum finished as follows.
 - 1) Finish: Mill finish.
 - 2) Finish: Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.

- (b) PowderGuard Textured powder coat color as selected by the Architect.
 - (c) PowderGuard Max powder coat, color as selected by Architect.
- 4. Weatherseals:
 - a. Vinyl bottom seal and internal hood seals.
 - b. Interior and exterior EPDM triple-seal finned guide weatherseal.
 - c. Lintel weatherseal.
 - d. Air Infiltration Package: IECC 2012/2015 listed; product to meet C402.4.3 2012 Air leakage <1.00 cfm/ft2.
 - 1) Air infiltration perimeter seal package includes: guide cover, guide cap, PVC weatherseal on exterior of guide, EPDM triple finned weatherseal on interior of guide, lintel weatherseal and vinyl bottom seal.
- 5. Bottom Bar:
 - a. Two powder coated black steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
 - b. Two galvanized steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
 - c. Two stainless steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
 - d. Two aluminum angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
- 6. Guides: Three structural steel angles.
- 7. Brackets:
 - a. Hot rolled powder coated black steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
 - c. Stainless steel to support counterbalance, curtain and hood.
- 8. Finish; Guides, Headplate and Brackets:
 - a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect..
- 9. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
- 10. Hood: Provide with internal hood baffle weatherseal.
 - a. 24 gauge galvanized steel with intermediate supports as required.
 - b. Stainless steel, 24 gauge hood with intermediate supports as required.
 - c. Aluminum hood with intermediate supports as required.
- 11. Manual Operation:
 - a. Chain hoist.
 - b. Crank operation.
- 12. Electric Motor Operation: Provide UL listed electric operator, size 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. Sensing Edge Protection:
 - 1) Pneumatic sensing edge.
 - 2) Electric sensing edge.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.

- 2) Key operation with open, close, and stop controls.
- 3) Push-button and key operated control stations with open, close, and stop buttons.
- 4) Controls for interior location.
- 5) Controls for exterior location.
- 6) Controls for both interior and exterior location.
- 7) Controls surface mounted.
- 8) Controls flush mounted.
- c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
- d. Motor Voltage: 115-230 single phase, 60 Hz.
- 13. Wind Load Design:
 - a. Standard wind load shall be 20 PSF.
 - b. FBC certification FL# ____.
 - c. TDI approval # _____.
- 14. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
- 15. Locking:
 - a. Chain keeper locks for chain hoist operation.
 - b. Interior slide bolt lock for electric operation with interlock switch.
 - c. Cylinder lock for electric operation with interlock switch.
- 16. Wall Mounting Condition:
 - a. Face-of-wall mounting.
 - b. Between jambs mounting.
- 17. Insulated Vision Lites: 10 inches by 1 inch (254 mm by 25.4 mm) uniformly spaced openings.
 - a. Provide with dual-wall polycarbonate.

2.4 ROLLING SHEET DOORS

- A. Commercial Wind Load Rolling Sheet Doors: Overhead Door™ Brand Model 790.
 - 1. Curtain: Roll formed, 26 gauge galvanized steel, per ASTM A 653, SQ Grade 80, Galvanized G-30. Sections interlocked and permanently seamed together to form a continuous curtain. Provided with a PVC edge strip stapled on the edge of curtain's exterior side to minimize steel-to-steel contact, enhance door operation, and minimize curtain nesting and scratching. Curtain shall have 9 gauge ductile iron wind locks on each edge of the curtain spaced according to door size and the application's wind load requirements.
 - 2. Sheet Finish:
 - a. Curtain sections shall receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - b. Top Coat Color:
 - 1) White.
 - 2) Glossy White.
 - 3) Garnet Red.
 - 4) Royal Blue.
 - 5) Polar Blue.
 - 6) Forest Green.
 - 7) Desert Tan.

- 8) Teal.
 - 9) Dark Teal.
 - 10) Walnut Brown.
 - 11) Bronze.
 - 12) As selected by the Architect from the manufacturer's standard colors.
- c. Guides, angles, bottom bar stops, headplates and rings galvanized. Aluminum bottom bar clear anodized.
3. Bottom Bar: Extruded aluminum reinforced with 1-1/2 inch by 2 inch (38 mm by 51 mm) roll formed steel angle and provided with a flexible PVC bulb type astragal to ensure a consistent seal along the floor. Extrusion designed to interlock with door curtain.
 4. Bottom Bar Stops: Bottom bar stops of "quick connect" design that allows the curtain to be inserted into the "universal" guide and lock into place with one fastener. Bottom bar stops shall be 12 gauge.
 5. Guides: Guides roll-formed from 14-gauge grade 50 galvanized steel. Guides 3 inches (76 mm) wide with UHMW polypropylene rub strips on each edge of the guide. Through hole, universal design shall allow easy access from the front of the guide for fastener attachment to the door jamb material. Guides of universal design for use in concrete, wood, steel or masonry jambs Guides pre-punched to accept "quick connect" attachment of the bottom bar stops.
 6. Headplates: Stamped 11 gauge steel, mounted directly to the wall to support the door shaft and ensure smooth door roll operation.
 7. Heavy Duty Headplates: 0.187 inch (4.76 mm) thick welded steel, mounted directly to the wall to support the door shaft and ensure smooth door roll operation.
 8. Counterbalance: Counterbalance assembly with "stepped" steel rings designed to ensure a tight and uniform curtain wrap. Rings include steel roller bearings for enhanced door operation and cycle life. 3-3/8 inch (86 mm) I.D. springs lubricated at factory to enhance long life and door operation. Shaft 1-5/16 inch (35 mm) diameter to minimize door deflection. Counterbalance assembly design to allow quick assembly of "non-handed" chain hoist on either side of door on the job site.
 9. Manual Operation:
 - a. Manual push up.
 - b. Chain hoist with 6:1 reduced drive.
 10. Electric Motor Operation: Provide UL listed electric operator, size 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. Sensing Edge Protection:
 - 1) N/A.
 - 2) Electric sensing edge.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close and stop controls.
 - 3) Push-button and key operated control stations with open, close and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.

- 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - d. Motor Voltage: 115-230 single phase, 60 Hz.
 - 11. Locking:
 - a. Standard Interior bottom bar slide bolt on each end of the door's bottom bar assembly.
 - b. Optional Dual Exterior curtain locks, Model 770 slide bolt lock.
 - 12. Wind Loads: Design door assembly for Model 790 doors to withstand wind/suction load of 25/37.5 psf (1197/1796 Pa) without damage to door or assembly components in conformance with DASMA 108-2012 and as required by local codes.
 - 13. Operation: Design door assembly, including operator, to operate for not less than 10,000 cycles.
- B. Commercial Rolling Sheet Doors: Overhead Door™ Brand Model 780.
- 1. Curtain: Roll formed, 26 gauge galvanized steel, per ASTM A 653 SQ Grade 80, Galvanized G-30. Sections interlocked and permanently seamed together to form a continuous curtain. Provided with a PVC edge strip stapled on the edge of curtain's exterior side to minimize steel-to-steel contact, enhance door operation, and minimize curtain nesting and scratching.
 - 2. Sheet Finish:
 - a. Curtain sections shall receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - b. Top Coat Color:
 - 1) White.
 - 2) Glossy White.
 - 3) Garnet Red.
 - 4) Royal Blue.
 - 5) Polar Blue.
 - 6) Forest Green.
 - 7) Desert Tan.
 - 8) Teal.
 - 9) Dark Teal.
 - 10) Walnut Brown.
 - 11) Bronze.
 - 12) As selected by the Architect from the manufacturer's standard colors.
 - c. Guides, angles, bottom bar stops, headplates and rings galvanized. Aluminum bottom bar clear anodized.
 - 3. Bottom Bar: Extruded aluminum reinforced with 1-1/2 inch by 2 inch (38 mm by 51 mm) roll formed steel angle and provided with a flexible PVC bulb type astragal to ensure a consistent seal along the floor. Extrusion designed to interlock with door curtain.
 - 4. Bottom Bar Stops: Bottom bar stops of "quick connect" design that allows the curtain to be inserted into the "universal" guide and lock into place with one fastener. Bottom bar stops shall be 12 gauge.
 - 5. Guides: Guides roll-formed from 18-gauge steel. Guides 3 inches (76 mm) wide with UHMW polypropylene rub strips on each edge of the guide. Through hole, universal design shall allow easy access from the front of the guide for fastener attachment to the door jamb material. Guides of universal design for use in concrete, wood, steel or masonry jambs Guides pre-punched to accept "quick connect" attachment of the bottom bar stops.

6. Headplates: Stamped 11 gauge steel, mounted directly to the wall to support the door shaft and ensure smooth door roll operation.
 7. Heavy Duty Headplates: 0.187 inch (4.76 mm) thick welded steel, mounted directly to the wall to support the door shaft and ensure smooth door roll operation.
 8. Counterbalance: Counterbalance assembly with “stepped” steel rings designed to ensure a tight and uniform curtain wrap. Rings include steel roller bearings for enhanced door operation and cycle life. 3-3/8 inch (86 mm) I.D. springs lubricated at factory to enhance long life and door operation. Shaft 1-5/16 inch (35 mm) diameter to minimize door deflection. Counterbalance assembly design to allow quick assembly of “non-handed” chain hoist on either side of door on the job site.
 9. Manual Operation:
 - a. Manual push up.
 - b. Chain hoist with 6:1 reduced drive.
 10. Electric Motor Operation: Provide UL listed electric operator, size 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. Sensing Edge Protection:
 - 1) N/A.
 - 2) Electric sensing edge.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - d. Motor Voltage: 115-230 single phase, 60 Hz.
 11. Locking:
 - a. Standard Interior bottom bar slide bolt on each end of the door's bottom bar assembly.
 - b. Optional Dual Exterior curtain locks, Model 770 slide bolt lock.
- C. Rolling Sheet Doors: Overhead Door™ Brand Model 770.
1. Curtain: Roll formed, 26 gauge galvanized steel, per ASTM A 653 SQ Grade 80, Galvanized G-30. Sections interlocked and permanently seamed together to form a continuous curtain. Provided with a PVC edge strip stapled on the edge of curtain's exterior side to minimize steel-to-steel contact, enhance door operation, and minimize curtain nesting and scratching.
 2. Sheet Finish:
 - a. Curtain sections shall receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.

- b. Top Coat Color:
 - 1) White.
 - 2) Glossy White.
 - 3) Garnet Red.
 - 4) Royal Blue.
 - 5) Polar Blue.
 - 6) Forest Green.
 - 7) Desert Tan.
 - 8) Teal.
 - 9) Dark Teal.
 - 10) Walnut Brown.
 - 11) Bronze.
 - 12) As selected by the Architect from the manufacturer's standard colors.
- c. Guides, angles, bottom bar stops, headplates and rings galvanized. Aluminum bottom bar clear anodized.
- 3. Bottom Bar: Extruded aluminum reinforced with 1-1/2 inch by 1-1/2 inch (38 mm by 38 mm) roll formed steel angle and provided with a flexible PVC bulb type astragal to ensure a consistent seal along the floor. Extrusion designed to interlock with door curtain.
- 4. Bottom Bar Stops: Bottom bar stops shall be of "quick connect" design that allows the curtain to be inserted into the "universal" guide, then locked into place without the use of fasteners. Bottom bar stops shall be 14 gauge.
- 5. Guides: Guide roll-formed from 18-gauge steel. Guides 1-5/8 inches (41 mm) wide with UHMW polypropylene rub strips on each edge of the guide. Through hole, universal design shall allow easy access from the front of the guide for fastener attachment to the door jamb material. Guides of universal design for use in concrete, wood, steel or masonry jambs Guides pre-punched to accept "quick connect" attachment of the headplate and bottom bar stops.
- 6. Headplates: Headplates of "quick connect" design for quick assembly to the guides. Headplates 14-gauge steel and includes steel roller bearings to prevent steel-to-steel contact for improved door operations and extended door shaft life.
- 7. Counterbalance: Counterbalance assembly with "stepped" designed steel rings to ensure a tight and uniform curtain wrap. 3-3/8 inch (86 mm) I.D. springs \lubricated at factory to enhance long life and door operation. Shaft 1-5/16 inch (35 mm) diameter with .065 inch (1.65 mm) wall thickness to minimize door deflection
- 8. Operation: Manual push up.
- 9. Locking:
 - a. Standard Interior bottom bar slide bolt on each end of the door's bottom bar assembly.
 - b. Optional Dual Exterior curtain locks, Model 770 slide bolt lock.

2.5 SPRINGLESS ROLLING SERVICE DOORS

- A. EverServe Model 610S Springless Rolling Service Doors by Overhead Door™ Brand.
 - 1. Curtain: Interlocking roll-formed metal slats as specified with endlocks attached to each end of alternate slats to prevent lateral movement.
 - a. Curved Profile type C-187 for doors up to 15 feet 4 inches wide shall be fabricated:
 - 1) 22 gauge galvanized steel.
 - 2) 20 gauge galvanized steel.
 - 3) 18 gauge galvanized steel.
 - 4) 22 gauge stainless steel.

- 5) 20 gauge stainless steel.
 - 6) .040 inch (1 mm) aluminum.
 - b. Curved Profile type C-275 for doors up to 20 feet wide shall be fabricated of:
 - 1) 22 gauge galvanized steel.
 - 2) 20 gauge galvanized steel.
 - 3) 18 gauge galvanized steel.
 - 4) 22 gauge stainless steel.
 - 5) 20 gauge stainless steel.
 - 6) .050 inch (1.29 mm) aluminum.
 - c. Flat Profile type F-265 for doors up to 20 feet wide fabricated of:
 - 1) 22 gauge galvanized steel.
 - 2) 20 gauge galvanized steel.
 - 3) 18 gauge galvanized steel.
 - 4) 22 gauge stainless steel.
 - 5) 20 gauge stainless steel.
 - 6) .040 inch (1 mm) aluminum.
 - d. Fenestrated Service Doors:
 - 1) Provide slats with 3 inches by 5/8 inch uniformly spaced openings
 - 2) Provide slats with 10 inches by 1 inch uniformly spaced openings
 - e. Ventilated Service Doors: Provide slats with 1/16 inch (16 mm) diameter perforations 3/32 inch (2.4 mm) on center staggered rows.
2. Curtain and Hood Finish:
- a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) Gray polyester.
 - (b) Tan polyester.
 - (c) White polyester.
 - (d) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Max powder coat, color as selected by Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - b. Stainless Steel: Slats shall be stainless steel finished as follows. Hoods are only available in No. 4 satin finish.
 - 1) Finish: 2B mill finish.
 - 2) Finish: No. 4 satin finish.
 - c. Aluminum: Slats and hood shall be aluminum finished as follows.
 - 1) Finish: Mill finish.
 - 2) Finish: Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Max powder coat, color as selected by Architect.
3. Weatherseals:
- a. Vinyl bottom seal.
 - b. Guide weatherseal.
4. Bottom Bar: Two metal angles, minimum thickness 3/16 inch, bolted back to back to reinforce curtain in the guides.

- a. Material:
 - 1) Steel.
 - 2) Extruded aluminum.
 - 3) Stainless steel with brushed finish.
5. Guides: Three Structural steel angles provided with high usage guide wear strip to minimize wear and reduce sound.
 - a. Material:
 - 1) Steel.
 - 2) High usage guide wear strips.
6. Brackets:
 - a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
7. Finish; Bottom Bar, Guides and Brackets:
 - a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect.
8. Motor: Direct drive, integrated gear motor/brake assembly sized for openings. Provide with a manual hand chain for operation during power outages. Operator and drive assembly is factory pre-assembled and provided with all wiring harnesses needed direct from the factory.
 - a. Supply Voltage: 208V AC, 1-phase 60Hz (190-207V range).
 - b. Supply Voltage: 230V AC, 1-phase 60Hz (208-245V range).
 - c. Supply Voltage: 208V AC, 3-phase 60Hz (190-207V range).
 - d. Supply Voltage: 230V AC, 3-phase 60Hz (208-245V range).
 - e. Supply Voltage: 460V AC, 3-phase 60Hz (456-495V range).
 - f. Supply Voltage: 575V AC, 3-phase 60Hz.
 - g. Left hand mount.
 - h. Right hand mount.
9. Control Panel: Electronic controller with microprocessor self-diagnostics. Digital readout indicates door action, alarm conditions and fault conditions. Time delay self-close timer and non-resettable cycle counter are included. Enclosure is IP54 rated (NEMA 3 equivalent).
10. Door Roll: Directly driven, springless roll shall be steel tube with integral shafts, keyed on the Drive End and supported by self-aligning greaseable sealed bearings. Door shall not require any counterbalance device.
11. Hood: Protecting drive motor, barrel, chain, and sprocket from dirt and debris and extending between the support brackets. Fabricated of:
 - a. 24 gauge galvanized steel with intermediate supports as required.
 - b. Stainless steel, 24 gauge hood with intermediate supports as required.
 - c. Aluminum hood with intermediate supports as required.
 - d. Provide with sloped hood and endcovers for exterior mounting.
12. Safety Devices: Provide door with following safety devices:
 - a. Photoelectric sensors that cast an invisible beam across the door opening and reverses the downward motion of the door when an object enters the path of the beam.
 - b. Built-in (to motor assembly) brake mechanism eliminates uncontrolled curtain travel independent of other safeties.
 - c. Sensing Edge Protection (option; not standard)
 - 1) Electric sensing edge.
13. Actuators:

- a. One Open/Close/Stop push button station incorporated into Control Panel.
 - b. Radio control.
 - c. Interior Push buttons.
 - d. Exterior Push buttons.
 - e. Interior Key switch.
 - f. Exterior Key switch.
 - g. Loop detectors.
 - h. Motion detectors.
 - i. Warning light.
14. Wind Load: Design door assembly to withstand wind/suction load of 20 psf (958 Pa) in conformance with DASMA 108-2012 and as required by local codes without damage to door or assembly components.
- B. EverServe Model 620S Springless Rolling Service Doors with Stormtite perimeter seals by Overhead Door™ Brand.
- 1. Curtain: Interlocking roll-formed metal slats as specified with endlocks attached to each end of alternate slats to prevent lateral movement.
 - a. Flat Profile type F-265 for doors up to 20 feet wide fabricated of:
 - 1) 22 gauge galvanized steel.
 - 2) 20 gauge galvanized steel.
 - 3) 18 gauge galvanized steel.
 - 4) 22 gauge stainless steel.
 - 5) 20 gauge stainless steel.
 - 6) .050 inch (1.29 mm) aluminum.
 - b. Vision Lites: Provide with uniformly spaced openings with Plexiglas covers over openings.
 - 1) Size: 3 inch by 5/8 inch (76 mm by 16 mm).
 - 2) Size: 10 inch by 1 inch (254 mm by 25.4 mm)
 - 2. Curtain and Hood Finish:
 - a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) Gray polyester.
 - (b) Tan polyester.
 - (c) White polyester.
 - (d) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Max powder coat, color as selected by Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - b. Stainless Steel: Slats shall be stainless steel finished as follows. Hoods are only available in No. 4 satin finish.
 - 1) Finish: 2B mill finish.
 - 2) Finish: No. 4 satin finish.
 - c. Aluminum: Slats and hood shall be aluminum finished as follows.
 - 1) Finish: Mill finish.
 - 2) Finish: Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.

- (b) PowderGuard Max powder coat, color as selected by Architect.
- 3. Weatherseals:
 - a. Vinyl bottom seal, exterior guide and internal hood seals.
 - b. Interior guide weatherseal.
 - c. Lintel weatherseal.
- 4. Bottom Bar: Two metal angles, minimum thickness 3/16 inch, bolted back to back to reinforce curtain in the guides.
 - a. Material:
 - 1) Steel.
 - 2) Extruded aluminum.
 - 3) Stainless steel with brushed finish.
- 5. Guides: Three Structural steel angles provided with high usage guide wear strip to minimize wear and reduce sound.
 - a. Material:
 - 1) Steel.
 - 2) High usage guide wear strips.
- 6. Brackets:
 - a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
- 7. Finish; Bottom Bar, Guides and Brackets:
 - a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect.
- 8. Motor: Direct drive, integrated gear motor/brake assembly sized for openings. Provide with a manual hand chain for operation during power outages. Operator and drive assembly is factory pre-assembled and provided with all wiring harnesses needed direct from the factory.
 - a. Supply Voltage: 208V AC, 1-phase 60Hz (190-207V range).
 - b. Supply Voltage: 230V AC, 1-phase 60Hz (208-245V range).
 - c. Supply Voltage: 208V AC, 3-phase 60Hz (190-207V range).
 - d. Supply Voltage: 230V AC, 3-phase 60Hz (208-245V range).
 - e. Supply Voltage: 460V AC, 3-phase 60Hz (456-495V range).
 - f. Supply Voltage: 575V AC, 3-phase 60Hz.
 - g. Left hand mount.
 - h. Right hand mount.
- 9. Control Panel: Electronic controller with microprocessor self-diagnostics. Digital readout indicates door action, alarm conditions and fault conditions. Time delay self-close timer and non-resettable cycle counter are included. Enclosure is IP54 rated (NEMA 3 equivalent).
- 10. Door Roll: Directly driven, springless roll shall be steel tube with integral shafts, keyed on the Drive End and supported by self-aligning greaseable sealed bearings. Door shall not require any counterbalance device.
- 11. Hood: Protecting drive motor, barrel, chain, and sprocket from dirt and debris and extending between the support brackets. Provide with internal hood baffle weatherseal. Fabricated of:
 - a. 24 gauge galvanized steel with intermediate supports as required.
 - b. Stainless steel, 24 gauge hood with intermediate supports as required.
 - c. Aluminum hood with intermediate supports as required.
 - d. Provide with sloped hood and endcovers for exterior mounting.
- 12. Safety Devices: Provide door with following safety devices:

- a. Photoelectric sensors that cast an invisible beam across the door opening and reverses the downward motion of the door when an object enters the path of the beam.
 - b. Built-in (to motor assembly) brake mechanism eliminates uncontrolled curtain travel independent of other safeties.
 - c. Sensing Edge Protection (option; not standard)
 - 1) Electric sensing edge.
13. Actuators:
- a. One Open/Close/Stop push button station incorporated into Control Panel.
 - b. Radio control.
 - c. Interior Push buttons.
 - d. Exterior Push buttons.
 - e. Interior Key switch.
 - f. Exterior Key switch.
 - g. Loop detectors.
 - h. Motion detectors.
 - i. Warning light.
14. Wind Load: Design door assembly to withstand wind/suction load of 20 psf (958 Pa) in conformance with DASMA 108-2012 and as required by local codes without damage to door or assembly components.
- C. EverServe Model 625S Insulated Springless Rolling Service Doors with Stormtite perimeter seals by Overhead Door™ Brand.
- 1. Curtain: Interlocking roll-formed metal slats as specified with endlocks attached to each end of alternate slats to prevent lateral movement.
 - a. Flat Profile insulated type F-265i with 24 gauge back covering steel or stainless steel; .024 inch (.06 mm) aluminum, for doors up to 20 feet wide fabricated of:
 - 1) 24 gauge powder coated steel.
 - 2) 22 gauge galvanized steel.
 - 3) 20 gauge galvanized steel.
 - 4) 18 gauge galvanized steel.
 - 5) 22 gauge stainless steel.
 - 6) 20 gauge stainless steel.
 - 7) .040 inch (1 mm) Aluminum.
 - b. Insulation: Slat cavity shall be filled with CFC-free, foamed-in-place, polyurethane insulation.
 - c. Insulated Vision Lites: Provide with uniformly spaced openings. Provide with dual wall polycarbonate lites.
 - 1) Size: 3 inch by 5/8 inch (76 mm by 16 mm)
 - 2) Size: 10 inch by 1 inch (254 mm by 25.4 mm)
 - 2. Performance:
 - a. R-Value: 7.7, U-Value: 0.13.
 - b. Through Curtain Sound Rating: Sound Rating: STC-28 (STC-30+ with HZ noise generator) as per ASTM E 90.
 - c. Installed System Sound Rating: STC-21 as per ASTM E 90.
 - d. U-factor: 0.91 NFRC test report, maximum U-factor of no higher than 1.00.
 - 3. Curtain and Hood Finish:
 - a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - 1) Polyester Top Coat.
 - (a) Gray polyester.

- (b) Tan polyester.
 - (c) White polyester.
 - (d) Brown polyester.
 - 2) Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Max powder coat, color as selected by Architect.
 - 3) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - b. Stainless Steel: Slats shall be stainless steel finished as follows. Hoods are only available in No. 4 satin finish.
 - 1) Finish: 2B mill finish.
 - 2) Finish: No. 4 satin finish.
 - c. Aluminum: Slats and hood shall be aluminum finished as follows.
 - 1) Finish: Mill finish.
 - 2) Finish: Powder Coat:
 - (a) PowderGuard Premium powder coat color as selected by the Architect.
 - (b) PowderGuard Max powder coat, color as selected by Architect.
4. Weatherseals:
 - a. Vinyl bottom seal, exterior guide and internal hood seals.
 - b. Interior guide weatherseal.
 - c. Lintel weatherseal.
5. Bottom Bar: Two metal angles, minimum thickness 3/16 inch, bolted back to back to reinforce curtain in the guides.
 - a. Material:
 - 1) Steel.
 - 2) Extruded aluminum.
 - 3) Stainless steel with brushed finish.
6. Guides: Three Structural steel angles provided with high usage guide wear strip to minimize wear and reduce sound.
 - a. Material:
 - 1) Steel.
 - 2) High usage guide wear strips.
7. Brackets:
 - a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
8. Finish; Bottom Bar, Guides and Brackets:
 - a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect...
9. Motor: Direct drive, integrated gear motor/brake assembly sized for openings. Provide with a manual hand chain for operation during power outages. Operator and drive assembly is factory pre-assembled and provided with all wiring harnesses needed direct from the factory.
 - a. Supply Voltage: 208V AC, 1-phase 60Hz (190-207V range).
 - b. Supply Voltage: 230V AC, 1-phase 60Hz (208-245V range).
 - c. Supply Voltage: 208V AC, 3-phase 60Hz (190-207V range).
 - d. Supply Voltage: 230V AC, 3-phase 60Hz (208-245V range).

- e. Supply Voltage: 460V AC, 3-phase 60Hz (456-495V range).
 - f. Supply Voltage: 575V AC, 3-phase 60Hz.
 - g. Left hand mount.
 - h. Right hand mount.
10. Control Panel: Electronic controller with microprocessor self-diagnostics. Digital readout indicates door action, alarm conditions and fault conditions. Time delay self-close timer and non-resettable cycle counter are included. Enclosure is IP54 rated (NEMA 3 equivalent).
 11. Door Roll: Directly driven, springless roll shall be steel tube with integral shafts, keyed on the Drive End and supported by self-aligning greaseable sealed bearings. Door shall not require any counterbalance device.
 12. Hood: Protecting drive motor, barrel, chain, and sprocket from dirt and debris and extending between the support brackets. Provide with internal hood baffle weatherseal. Fabricated of:
 - a. 24 gauge galvanized steel with intermediate supports as required.
 - b. Stainless steel, 24 gauge hood with intermediate supports as required.
 - c. Aluminum hood with intermediate supports as required.
 - d. Provide with sloped hood and endcovers for exterior mounting.
 13. Safety Devices: Provide door with following safety devices:
 - a. Photoelectric sensors that cast an invisible beam across the door opening and reverses the downward motion of the door when an object enters the path of the beam.
 - b. Built-in (to motor assembly) brake mechanism eliminates uncontrolled curtain travel independent of other safeties.
 - c. Sensing Edge Protection (option; not standard)
 - 1) Electric sensing edge.
 14. Actuators:
 - a. One Open/Close/Stop push button station incorporated into Control Panel.
 - b. Radio control.
 - c. Interior Push buttons.
 - d. Exterior Push buttons.
 - e. Interior Key switch.
 - f. Exterior Key switch.
 - g. Loop detectors.
 - h. Motion detectors.
 - i. Warning light.
 15. Wind load: Design door assembly to withstand wind/suction load of 20 psf (958 Pa) in conformance with DASMA 108-2012 and as required by local codes without damage to door or assembly components.

2.6 ADVANCED PERFORMANCE ROLLING SERVICE DOORS

- A. RapidSlat Model 611 Rolling Service Doors by Overhead Door™ Brand.
 1. Curtain: Interlocking roll-formed metal slats as specified with endlocks attached to each end of alternate slats to prevent lateral movement.
 - a. Curved Profile type C-187 for doors up to 15 feet 4 inches wide shall be fabricated:
 - 1) 22 gauge powder coated steel.
 - 2) 20 gauge powder coated steel.
 - 3) 18 gauge powder coated steel.
 - 4) 22 gauge stainless steel.
 - 5) 20 gauge stainless steel.
 - 6) .040 inch (1 mm) aluminum.
 - b. Curved Profile type C-275 for doors up to 20 feet wide shall be fabricated of:

- 1) 22 gauge powder coated steel.
 - 2) 20 gauge powder coated steel.
 - 3) 18 gauge powder coated steel.
 - 4) 22 gauge stainless steel.
 - 5) 20 gauge stainless steel.
 - 6) .050 inch (1.29 mm) aluminum.
- c. Flat Profile type F-265 for doors up to 20 feet wide fabricated of:
- 1) 22 gauge powder coated steel.
 - 2) 20 gauge powder coated steel.
 - 3) 18 gauge powder coated steel.
 - 4) 22 gauge stainless steel.
 - 5) 20 gauge stainless steel.
 - 6) .050 inch (1.29 mm) aluminum.
- d. Fenestrated Service Doors: Provide slats with 3 inches by 5/8 inch uniformly spaced openings:
- e. Ventilated Service Doors: Provide slats with 1/16 inch (16 mm) diameter perforations 3/32 inch (2.4 mm) on center staggered rows.
- f. Curtain Finish:
- 1) PowderGuard Max powder coat.
 - (a) Gray.
 - (b) Tan.
 - (c) White.
 - (d) Color as selected by Architect.
2. Bottom Bar: Two metal angles, minimum thickness 3/16 inch, bolted back to back to reinforce curtain in the guides.
- a. Material:
- 1) Steel.
 - 2) Extruded aluminum.
 - 3) Stainless steel with brushed finish.
3. Guides: Three Structural steel angles provided with high usage guide wear strip to minimize wear and reduce sound.
- a. Material:
- 1) Steel.
 - 2) High usage guide wear strips.
4. Brackets:
- a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
- b. Galvanized steel to support counterbalance, curtain and hood.
5. Finish; Bottom Bar, Guides, Headplate and Brackets:
- a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect.
6. Motor: Direct drive, integrated gear motor/brake assembly sized for openings. Provide with a manual hand chain for operation during power outages. Operator and drive assembly is factory pre-assembled and provided with all wiring harnesses needed direct from the factory.
- a. Supply Voltage: 208V AC, 1-phase 60Hz (190-207V range).
 - b. Supply Voltage: 230V AC, 1-phase 60Hz (208-245V range).
 - c. Supply Voltage: 208V AC, 3-phase 60Hz (190-207V range).
 - d. Supply Voltage: 230V AC, 3-phase 60Hz (208-245V range).
 - e. Supply Voltage: 460V AC, 3-phase 60Hz (456-495V range).
 - f. Supply Voltage: 575V AC, 3-phase 60Hz.

- g. Left hand mount.
 - h. Right hand mount.
 - 7. Control Panel: Provide electronic Variable Frequency drive controller with microprocessor self-diagnostics. LCD readout indicates door action, alarm conditions, and fault conditions. Timer to close programming options and non-resettable cycle counter are included. Enclosure is NEMA 4X rated. Control system is UL508A certified. Junction box is IP67 rated.
 - 8. Door Roll: Directly driven, springless roll shall be steel tube with integral shafts, keyed on the Drive End and supported by self-aligning greaseable sealed bearings. Door shall not require any counterbalance device.
 - 9. Hood: Protecting drive motor, barrel, chain, and sprocket from dirt and debris and extending between the support brackets. Fabricated of:
 - a. Material:
 - 1) Steel.
 - 2) Aluminum.
 - 3) Stainless steel with brushed finish.
 - b. Steel/Aluminum Finish:
 - 1) Polyester paint in black color (steel only).
 - 2) PowderGuard Premium powder coat, color as selected by Architect.
 - 3) PowderGuard Textured powder coat, color as selected by Architect.
 - 4) PowderGuard Max powder coat, color as selected by Architect.
 - c. Provide with sloped top for exterior mounting.
 - 10. Safety Devices: Provide door with following safety devices:
 - a. Photoelectric sensors that cast an invisible beam across the door opening and reverses the downward motion of the door when an object enters the path of the beam.
 - b. Wireless, monitored safety edge reverses downward motion upon impact.
 - c. Built-in (to motor assembly) brake mechanism eliminates uncontrolled curtain travel independent of other safeties.
 - 11. Actuators:
 - a. One Open/Close/Stop push button station incorporated into Control Panel.
 - b. Loop detectors.
 - c. Radio control.
 - d. Interior Push buttons.
 - e. Exterior Push buttons.
 - f. Interior Key switch.
 - g. Exterior Key switch.
 - h. Motion detectors.
 - i. Warning light.
 - j. Horns and/or strobes.
 - k. Second set of photoelectric sensors.
 - 12. Wind Load Design:
 - a. Standard wind load shall be 20 PSF.
 - b. Miami-Dade County NOA ____.
 - c. FBC certification FL# ____.
 - d. TDI approval # ____.
- B. RapidSlat Model 621 Stormtite Rolling Service Doors by Overhead Door™ Brand.
- 1. Curtain: Interlocking roll-formed metal slats as specified with endlocks attached to each end of alternate slats to prevent lateral movement.
 - a. Flat Profile type F-265 for doors up to 20 feet wide fabricated of:
 - 1) 22 gauge powder coated steel.

- 2) 20 gauge powder coated steel.
- 3) 18 gauge powder coated steel.
- 4) 22 gauge stainless steel.
- 5) 20 gauge stainless steel.
- 6) .050 inch (1.29 mm) aluminum.
- b. Curtain Finish:
 - 1) PowderGuard Max powder coat.
 - (a) Gray.
 - (b) Tan.
 - (c) White.
 - (d) Color as selected by Architect.
2. Bottom Bar: Two metal angles, minimum thickness 3/16 inch, bolted back to back to reinforce curtain in the guides.
 - a. Material:
 - 1) Steel.
 - 2) Extruded aluminum.
 - 3) Stainless steel with brushed finish.
3. Guides: Three Structural steel angles provided with high usage guide wear strip to minimize wear and reduce sound.
 - a. Material:
 - 1) Steel.
 - 2) High usage guide wear strips.
4. Brackets:
 - a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
5. Finish; Bottom Bar, Guides, Headplate and Brackets:
 - a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect..
6. Motor: Direct drive, integrated gear motor/brake assembly sized for openings. Provide with a manual hand chain for operation during power outages. Operator and drive assembly is factory pre-assembled and provided with all wiring harnesses needed direct from the factory.
 - a. Supply Voltage: 208V AC, 1-phase 60Hz (190-207V range).
 - b. Supply Voltage: 230V AC, 1-phase 60Hz (208-245V range).
 - c. Supply Voltage: 208V AC, 3-phase 60Hz (190-207V range).
 - d. Supply Voltage: 230V AC, 3-phase 60Hz (208-245V range).
 - e. Supply Voltage: 460V AC, 3-phase 60Hz (456-495V range).
 - f. Supply Voltage: 575V AC, 3-phase 60Hz..
 - g. Left hand mount.
 - h. Right hand mount.
7. Control Panel: Provide electronic Variable Frequency drive controller with microprocessor self-diagnostics. LCD readout indicates door action, alarm conditions, and fault conditions. Timer to close programming options and non-resettable cycle counter are included. Enclosure is NEMA 4X rated. Control system is UL508A certified. Junction box is IP67 rated.
8. Door Roll: Directly driven, springless roll shall be steel tube with integral shafts, keyed on the Drive End and supported by self-aligning greaseable sealed bearings. Door shall not require any counterbalance device.
9. Hood: Protecting drive motor, barrel, chain, and sprocket from dirt and debris and extending between the support brackets. Fabricated of:

- a. Material:
 - 1) Steel.
 - 2) Aluminum.
 - 3) Stainless steel with brushed finish.
 - b. Steel/Aluminum Finish:
 - 1) Polyester paint in black color (steel only)
 - 2) PowderGuard Premium powder coat, color as selected by Architect.
 - 3) PowderGuard Textured powder coat, color as selected by Architect.
 - 4) PowderGuard Max powder coat, color as selected by Architect.
 - c. Provide with sloped top for exterior mounting.
10. Safety Devices: Provide door with following safety devices:
- a. Photoelectric sensors that cast an invisible beam across the door opening and reverses the downward motion of the door when an object enters the path of the beam.
 - b. Wireless, monitored safety edge reverses downward motion upon impact.
 - c. Built-in (to motor assembly) brake mechanism eliminates uncontrolled curtain travel independent of other safeties.
11. Actuators:
- a. One Open/Close/Stop push button station incorporated into Control Panel.
 - b. Loop detectors.
 - c. Radio control.
 - d. Interior Push buttons.
 - e. Exterior Push buttons.
 - f. Interior Key switch.
 - g. Exterior Key switch.
 - h. Motion detectors.
 - i. Warning light.
 - j. Horns and/or strobes.
 - k. Second set of photoelectric sensors.
12. Wind Load Design:
- a. Standard wind load shall be 20 PSF.
 - b. Miami-Dade County NOA ____.
 - c. FBC certification FL# ____.
 - d. TDI approval # ____.
- C. RapidSlat Model 626 Stormtite Insulated Rolling Service Doors by Overhead Door™ Brand.
- 1. Curtain: Interlocking roll-formed metal slats as specified with endlocks attached to each end of alternate slats to prevent lateral movement.
 - a. Flat Profile insulated type F-265i with 24 gauge back covering steel or stainless steel; .024 inch (.06 mm) aluminum, for doors up to 20 feet wide fabricated of:
 - 1) 24 gauge powder coated steel.
 - 2) 22 gauge powder coated steel.
 - 3) 20 gauge powder coated steel.
 - 4) 18 gauge powder coated steel.
 - 5) 22 gauge stainless steel.
 - 6) 20 gauge stainless steel.
 - 7) .040 inch (1 mm Aluminum).
 - b. Insulation: Slat cavity shall be filled with CFC-free, foamed-in-place, polyurethane insulation.
 - 1) R-Value: 7.7, U-Value: 0.13.

- 2) Sound Rating: STC-21.
- c. Slat Finish:
 - 1) PowderGuard Max powder coat.
 - (a) Gray.
 - (b) Tan.
 - (c) White.
 - (d) Color as selected by Architect.
- 2. Bottom Bar: Two metal angles, minimum thickness 3/16 inch, bolted back to back to reinforce curtain in the guides.
 - a. Material:
 - 1) Steel.
 - 2) Extruded aluminum.
 - 3) Stainless steel with brushed finish.
- 3. Guides: Three Structural steel angles provided with high usage guide wear strip to minimize wear and reduce sound.
 - a. Material:
 - 1) Steel.
 - 2) High usage guide wear strips.
- 4. Brackets:
 - a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
 - b. Galvanized steel to support counterbalance, curtain and hood.
- 5. Finish; Bottom Bar, Guides, Headplate and Brackets:
 - a. PowderGuard Premium powder coat in black color.
 - b. PowderGuard Premium powder coat color as selected by the Architect.
 - c. PowderGuard Zinc base coat, gray.
 - d. PowderGuard Zinc base coat with PowderGuard Premium powder coat color as selected by the Architect.
 - e. PowderGuard Textured powder coat color as selected by the Architect.
 - f. PowderGuard Max powder coat color as selected by the Architect..
- 6. Motor: Direct drive, integrated gear motor/brake assembly sized for openings. Provide with a manual hand chain for operation during power outages. Operator and drive assembly is factory pre-assembled and provided with all wiring harnesses needed direct from the factory.
 - a. Supply Voltage: 208V AC, 1-phase 60Hz (190-207V range).
 - b. Supply Voltage: 230V AC, 1-phase 60Hz (208-245V range).
 - c. Supply Voltage: 208V AC, 3-phase 60Hz (190-207V range).
 - d. Supply Voltage: 230V AC, 3-phase 60Hz (208-245V range).
 - e. Supply Voltage: 460V AC, 3-phase 60Hz (456-495V range).
 - f. Supply Voltage: 575V AC, 3-phase 60Hz.
 - g. Left hand mount.
 - h. Right hand mount.
- 7. Control Panel: Provide electronic Variable Frequency drive controller with microprocessor self-diagnostics. LCD readout indicates door action, alarm conditions, and fault conditions. Timer to close programming options and non-resettable cycle counter are included. Enclosure is NEMA 4X rated. Control system is UL508A certified. Junction box is IP67 rated.
- 8. Door Roll: Directly driven, springless roll shall be steel tube with integral shafts, keyed on the Drive End and supported by self-aligning greaseable sealed bearings. Door shall not require any counterbalance device.
- 9. Hood: Protecting drive motor, barrel, chain, and sprocket from dirt and debris and extending between the support brackets. Fabricated of:
 - a. Material:
 - 1) Steel.
 - 2) Aluminum.
 - 3) Stainless steel with brushed finish.

- b. Steel/Aluminum Finish:
 - 1) Polyester paint in black color (steel only)
 - 2) PowderGuard Premium powder coat, color as selected by Architect.
 - 3) PowderGuard Textured powder coat, color as selected by Architect.
 - 4) PowderGuard Max powder coat, color as selected by Architect.
- c. Provide with sloped top for exterior mounting.
- 10. Safety Devices: Provide door with following safety devices:
 - a. Photoelectric sensors that cast an invisible beam across the door opening and reverses the downward motion of the door when an object enters the path of the beam.
 - b. Wireless, monitored safety edge reverses downward motion upon impact.
 - c. Built-in (to motor assembly) brake mechanism eliminates uncontrolled curtain travel independent of other safeties.
- 11. Actuators:
 - a. One Open/Close/Stop push button station incorporated into Control Panel.
 - b. Loop detectors.
 - c. Radio control.
 - d. Interior Push buttons.
 - e. Exterior Push buttons.
 - f. Interior Key switch.
 - g. Exterior Key switch.
 - h. Motion detectors.
 - i. Warning light.
 - j. Horns and/or strobes.
 - k. Second set of photoelectric sensors.
- 12. Wind Load Design:
 - a. Standard wind load shall be 20 PSF.
 - b. Miami-Dade County NOA ____.
 - c. FBC certification FL# ____.
 - d. TDI approval # _____.

2.7 ROLLING STEEL STORM SHELTER DOORS

- A. Overhead Door™ Brand, Model 610F Rolling Steel Storm Shelter Door
 - 1. Description: Doors are Labeled for use as a Windstorm Rated Assembly and Tested in Accordance with ICC-500-2020, ICC-500-2014 and FEMA 361-2015 when used with ICC-500-2014 Listed Hardware.
 - a. Design Pressure =
 - 1) Test Pressure = 300psf
 - 2) Tornado Pressure = 250psf
 - 3) Hurricane Pressure = 200psf
 - b. Missile Impact = 13ft / 15lb 2x4 @ 100MPH
 - c. Maximum Tested Size = 16ft Width x 16ft Height
 - d. Minimum Tested Size = 4ft Width x 4ft Height
 - 2. Curtain: Interlocking roll-formed slats with endlocks continuously attached
 - a. Slat Profiles/Material:
 - 1) Curved profile type C-600 for doors up to 12 feet (3.66 m) wide.
 - (a) 12-gauge G40 galvanized steel.
 - 3. Bottom Bar: Consists of two equal angles, 0.12 inch minimum thickness, to stiffen curtain. Angle shall be:
 - a. Steel.
 - 4. Guides:

- a. Three structural angle guide assembly fabricated of:
 - 1) Steel.
- b. Provide with integral windlock bars and removable bottom bar stops.
- 5. Brackets: Design to enclose ends of coil and provide support for counterbalance pipe at each end. Fabricate of steel plates, with permanently sealed ball bearings. Thickness shall be:
 - a. 3/16 inch minimum.
 - b. 1/4 inch minimum.
- 6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
- 7. Hood: Hood to enclose curtain coil and counterbalance mechanism. Hood fabricated of sheet metal, flanged at top for attachment to header and flanged at bottom to provide longitudinal stiffness. Provide with a steel hood baffle. Fabricate of:
 - a. Minimum 24-gauge galvanized steel.
- 8. Finish:
 - a. Galvanized Steel: Powder Coat.
 - 1) PowderGuard Premium powder coat, color as selected by the Architect.
 - 2) PowderGuard Textured powder coat, color as selected by the Architect.
 - 3) PowderGuard Max powder coat, color as selected by Architect.
 - b. Non-Galvanized Surfaces: Shop coat of rust inhibitive primer on non-galvanized surfaces and operating mechanisms.
- 9. Motor Operation: RHX[®] Service Door Operator, size 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. Operation: Design door assembly, including operator, to operate for not less than 10,000 cycles.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - 8) Motor Voltage:
 - (a) 115/230 single phase, 60 Hz.
 - (b) 208/230 three phase,
 - (c) 460 three phase;
- 10. Locking:
 - a. Chain keeper locks for chain hoist operation.
 - b. Interior slide bolt lock for electric operation with interlock switch.

- c. Cylinder lock.
 - 11. Mounting: Face of Wall.
- B. Overhead Door Model 610FE Rolling Steel Storm Shelter and Forced Entry rated Door. Doors are Labeled for use as a Windstorm Rated Assembly and Tested in Accordance with ICC-500-2020, ICC-500-2014 and FEMA 361-2015 when used with ICC-500-2014 Listed Hardware. Doors are Forced Entry ASTM F 3038 rated for up to 30 Minutes with Ballistics Ratings that include .22 LR and .38 Special in accordance with NIJ 0108.01
1. Curtain: Interlocking roll-formed slats with endlocks continuously attached
 - a. Slat Profiles/Material:
 - 1) Curved profile type C-600 for doors up to 12 feet (3.66 m) wide.
 - (a) 12-gauge G40 galvanized steel.
 2. Bottom Bar: Consists of two equal angles, 0.12 inch minimum thickness, to stiffen curtain. Angle shall be:
 - a. Steel.
 3. Guides:
 - a. Three structural angle guide assembly fabricated of:
 - 1) Steel.
 4. Brackets: Design to enclose ends of coil and provide support for counterbalance pipe at each end. Fabricate of steel plates, with permanently sealed ball bearings. Thickness shall be:
 - a. 3/16 inch minimum.
 - b. 1/4 inch minimum.
 5. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
 6. Hood: Hood to enclose curtain coil and counterbalance mechanism. Hood fabricated of sheet metal, flanged at top for attachment to header and flanged at bottom to provide longitudinal stiffness. Provide with a steel hood baffle. Fabricate of:
 - a. Minimum 24-gauge galvanized steel.
 7. Finish:
 - a. Galvanized Steel: Powder Coat.
 - 1) PowderGuard Premium powder coat, color as selected by the Architect.
 - 2) PowderGuard Textured powder coat, color as selected by the Architect.
 - 3) PowderGuard Max powder coat, color as selected by Architect.
 - b. Non-Galvanized Surfaces: Shop coat of rust inhibitive primer on non-galvanized surfaces and operating mechanisms.
 8. Electric Motor Operation: Operation: RHX[®] Service Door Operator,, size 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. Operation: Design door assembly, including operator, to operate for not less than 10,000 cycles.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.

- 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - 8) Motor Voltage:
 - (a) 115/230 single phase, 60 Hz.
 - (b) 208/230 three phase,
 - (c) 460 three phase;
 - 9. Locking:
 - a. Chain keeper locks for chain hoist operation.
 - b. Interior slide bolt lock for electric operation with interlock switch.
 - c. Cylinder lock.
 - 10. Mounting: Face of Wall.
- C. Overhead Door Model 610FR Rolling Steel Storm Shelter and Fire rated Door. Doors are Labeled for use as a Windstorm Rated Assembly and Tested in Accordance with ICC-500-2020, ICC-500-2014 and FEMA 361-2015 when used with ICC-500-2014 Listed Hardware. Doors are Certified to: UL 10B, NFPA 252, CAN / ULC S104 - 4 Hour Fire Rating .
1. Description: . Doors are Labeled for use as a Windstorm Rated Assembly and Tested in Accordance with ICC-500-2020, ICC-500-2014 and FEMA 361-2015 when used with ICC-500-2014 Listed Hardware. Doors are also WH Fire Rated for rated for up to 4 hrs.
 - a. Design Pressure =
 - 1) Test Pressure = 300psf
 - 2) Tornado Pressure = 250psf
 - 3) Hurricane Pressure = 200psf
 - b. Missile Impact = 13ft / 15lb 2x4 @ 100MPH
 - c. Maximum Tested Size = 16ft Width x 16ft Height
 - d. Minimum Tested Size = 4ft Width x 4ft Height
 2. Curtain: Interlocking roll-formed slats with continuously attached
 - a. Slat Profiles/Material:
 - 1) Curved profile type C-600 for doors up to 12 feet (3.66 m) wide.
 - (a) 12-gauge G40 galvanized steel.
 3. Bottom Bar: Consists of two equal angles, 0.12 inch minimum thickness, to stiffen curtain. Angle shall be:
 - a. Steel.
 4. Guides:
 - a. Three structural angle guide assembly fabricated of:
 - 1) Steel.
 - b. Provide with integral windlock bars and removable bottom bar stops.
 5. Brackets: Design to enclose ends of coil and provide support for counterbalance pipe at each end. Fabricate of steel plates, with permanently sealed ball bearings. Thickness shall be:
 - a. 3/16 inch minimum.
 - b. 1/4 inch minimum.
 6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
 7. Hood: Hood to enclose curtain coil and counterbalance mechanism. Hood fabricated of sheet metal, flanged at top for attachment to header and flanged

at bottom to provide longitudinal stiffness. Provide with a steel hood baffle.
Fabricate of:

- a. Minimum 24-gauge galvanized steel.
8. Finish:
 - a. Galvanized Steel: Powder Coat.
 - 1) PowderGuard Premium powder coat, color as selected by the Architect.
 - 2) PowderGuard Textured powder coat, color as selected by the Architect.
 - 3) PowderGuard Max powder coat, color as selected by Architect.
 - b. Non-Galvanized Surfaces: Shop coat of rust inhibitive primer on non-galvanized surfaces and operating mechanisms.
9. Electric Motor Operation: Provide UL listed electric operator, size 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. Operation: Design door assembly, including operator, to operate for not less than 10,000 cycles.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
 - c. Special Operation:
 - 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) Photocell operation.
 - 5) Door timer operation.
 - 6) Commercial light package.
 - 7) Explosion and dust ignition proof control wiring.
 - 8) Motor Voltage:
 - (a) 115/230 single phase, 60 Hz.
 - (b) 208/230 three phase,
 - (c) 460 three phase;
10. Locking:
 - a. Chain keeper locks for chain hoist operation.
 - b. Interior slide bolt lock for electric operation with interlock switch.
 - c. Cylinder lock.
11. Mounting: Face of Wall.

2.8 ROLLING SECURITY SHUTTERS

- A. Aluminum Light Duty Shutter: Overhead Door™ Brand, Model 653.
 1. Wall Mounting Condition:
 - a. Face-of-wall mounting.
 - b. Between jambs mounting.
 2. Curtain: Interlocking extruded aluminum slats constructed of .05 inch aluminum. Nickel plated, steel screws and end locks to retain curtain within guides and prevent lateral movement. Over 16 feet wide will come standard with plastic roller retainers to strengthen curtain.

3. Fenestration/Perforation:
 - a. Open fenestration 1 inch by 1 inch; 0.5 inch uniformly spaced openings; full curtain.
 - b. Perforation full curtain.
 - c. Partial open fenestration, 1 inch by 1 inch; 0.5 inch uniformly spaced openings; Height of curtain segment to be fenestrated as indicated on the Drawings.
 - d. Partial perforation, height of curtain segment to be perforated as indicated on the Drawings.
4. Curtain and Hood Finish:
 - a. Powder Coat: PowderGuard Premium
 - 1) Silver powder coat to match look of clear anodized aluminum.
 - 2) Bronze powder coat to match look of bronze anodized.
 - 3) White.
 - 4) Almond.
 - 5) PowderGuard Premium color as selected by the Architect.
5. Bottom Bar and Locking:
 - a. Aluminum compact bottom bar with vinyl bulb seal with coil side left and right slide locks. Powder coat to match curtain color selection. (standard).
 - b. Aluminum compact bottom bar with vinyl bulb seal with padlock-able non-coil side left and right slide locks. Powder coat to match curtain color selection.
 - c. Tubular aluminum cylinder locking bottom bar with weatherstrip. Requires 1.5 inch by 3 inch wall tubes for face of wall mount.
 - d. Locking doors with tube motor shall be provided with interlock micro switch.
 - e. Aluminum compact bottom bar with vinyl bulb seal; non-locking.
 - f. Step angle attachment option.
6. Guides: Extruded aluminum channels with continuous PVC wear strips. Powder coat: color to match curtain.
7. Brackets: Steel plate to support counterbalance, curtain and hood. Powder coat to match curtain color selection.
8. Hood: Aluminum 2 piece square hood silver powder coated to match curtain color selection. Provide with intermediate support brackets as required. Hood with brackets; box sized to match manufacturer's recommendation based on door height.
9. Counterbalance: Steel barrel housing counterbalance spring assembly.
10. Operation:
 - a. Manual push up.
 - b. Crank operation.
 - c. Electric tube motor with crank for emergency egress manual override.
11. Electric Motor Operation: Provide UL listed electric operator, size as recommended by manufacturer:
 - a. Operator Controls:
 - 1) Double throw hard wired wall switch.

to provide added security at the driveway access from the street or entrance to residential property, preventing unwanted access.

- B. Allura Residential Exterior Security Shutter System: Overhead Door™ Brand, Model 653RX.
 1. Wall Mounting Condition: Face-of-wall. Requires face-of-wall steel tube structure Specified in Section 05500.
 2. Curtain: Interlocking extruded aluminum slats constructed of .05 inch aluminum. Nickel plated, steel screws and end locks to retain curtain within guides and prevent lateral movement.

3. Fenestration/Perforation:
 - a. Open fenestration 1 inch by 1 inch; 0.5 inch uniformly spaced openings; full curtain.
 - b. Perforation full curtain.
 - c. Partial open fenestration, 1 inch by 1 inch; 0.5 inch uniformly spaced openings; Height of curtain segment to be fenestrated as indicated on the Drawings.
 - d. Partial perforation, height of curtain segment to be perforated as indicated on the Drawings.
4. Curtain and Hood Finish:
 - a. Powder Coat: PowderGuard Premium
 - 1) Silver powder coat to match look of clear anodized aluminum.
 - 2) Bronze powder coat to match look of bronze anodized.
 - 3) White.
 - 4) Almond.
 - 5) PowderGuard Premium color as selected by the Architect.
5. Bottom Bar and Locking:
 - a. Tubular aluminum bottom bar with weatherseal.
 - b. Tubular aluminum bottom bar with weatherseal and cylinder lock (interlock micro switch required).
6. Guides: Extruded aluminum channels with continuous PVC wear strips. Powder coat to match curtain color selection.
7. Brackets: Steel plate to support counterbalance, curtain and hood. Powder coat to match curtain color selection.
8. Hood: Aluminum sloped hood to promote moisture runoff, powder coated to match curtain color selection. Provide with intermediate support brackets as required.
9. Counterbalance: Steel barrel housing counterbalance spring assembly.
10. Electric Motor Operation: Provide UL 325 listed electric operator designed for residential exterior shutter application
 - a. Direct drive side mounted shutter opener in weather resistant enclosure.
 - b. 115V AC single phase powered.
 - c. Operator can be left or right hand mounted.
 - d. DC Motor with soft start and stop.
 - e. Monitored NEMA 4X photo eyes
 - f. Door force detection for safety
 - g. Battery backup for door operation during brief power outages.
 - h. Manual operation in the event of extended outage
11. Operator Controls:
 - a. 3-button remote with receiver and antenna kit included
 - b. Additional remote(s).
 - c. Wireless keypad.
 - d. Push button station.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify opening sizes, tolerances and conditions are acceptable.
- B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

Rolling Steel Storm Shelter Doors construction documents for community storm shelters should include a quality assurance plan (QAP) prepared by a registered design professional. Install rolling steel storm shelter doors in accordance with the manufacturer's instructions and CC 500-2014.

1. Anchors used to install impact-protective systems require a special inspection to verify compliance with the required design information listed in Section 106.2.1 of CC 500-2014
 2. Contractors who install the assembly shall acknowledge their responsibility by submitting a written statement to the authority having jurisdiction.
- C. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
 - D. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
 - E. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
 - F. Coordinate installation of electrical service with Section 16150. Complete wiring from disconnect to unit components.
 - G. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.
 - H. Install perimeter trim and closures.
 - I. Instruct Owner's personnel in proper operating procedures and maintenance schedule.

3.4 ADJUSTING

- A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

- A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

- B. Remove labels and visible markings.
- C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION