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Description automatically generated540 SERIES | STANDARD MOTOR | MANUAL OVERRIDE | KEY SWITCH | AUTOLOCK

**DEFENDAGUARD SPECIFICATIONS**

**ROLLING SECURITY SHUTTERS**

**083300**

PART 1 – GENERAL

**1.1 SECTION INCLUDES**

1. Rolling security shutters/Aluminum coiling door closures/Interior and exterior shutters/Storm shutters
   1. Operation type
   2. Mounting options
   3. Curtain series
   4. Box housings
   5. Guide rails
   6. Bottom bars
   7. Locking
   8. Sills
   9. STAX (Buildout)

**1.2 RELATED SECTIONS**

1. Section 081700 – Metal fabrication: Door opening jamb and head members
2. Section 081713 – Rough carpentry: Door opening jamb and head members
3. Section 095000 – Ceiling access: Box housing servicing access
4. Section 087100 – Door locking hardware
5. Section 281413 – Door controllers
6. Section 263300 – Emergency battery back-up

**1.3 SUBMITTALS**

1. Submit under provisions of Section 013300.
2. Product Data – Submit manufacturer's complete product data information for the specified product, including specifications, installation instructions, and detail sheets.
3. Shop Drawings – Submit all shop drawings showing with detailed plan layout, dimensions, product materials, anchoring and mounting details, fabrication requirements, clearance requirements, operation and wiring diagrams for motor operated shutters, hardware, accessories, and component details (box housings, guide rails, operators, locking hardware, and finishes).
4. Samples: Manufacturer’s full range of colors and finishes available for selection.
5. Quality Assurance Submittals:
   1. Operation and Maintenance Instructions: Submit user manuals including maintenance and operation instructions.
   2. Warranty: Submit specified warranty documents.

**1.4 QUALITY ASSURANCE**

1. Manufacturer Qualifications: The company specializing in performing the work of this section with reliability and experience in the installation of security shutters.
2. Regulatory Requirements: Comply with all local and governing code requirements.
3. Pre-Installation Meeting: Conduct a pre-installation meeting to discuss project installation and coordination requirements, site conditions, and the manufacturer's instructions.

**1.5 DELIVERY, HANDLING, AND STORAGE**

1. Deliver materials to site in shipping crates and packaging. Store off the ground on wood supports spaced to prevent damage. Store inside building under cover to prevent damage from weather of construction activities.

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1. Site Measurements: Verify actual measurements of openings by site measurements before the installation. Show these verified measurements on shop drawings.

**1.7 WARRANTY**

1. Submit manufacturer’s warranty for the owner’s acceptance.
   1. One (1) year manufacturer guarantee that product components will be warranted against defects in material, design, and workmanship or they shall be replaced or repaired at no cost to the owner. Installer to provide a written guarantee that there will be no labor charge for warranty repairs for one (1) year from the date of installation.

PART 2 – PRODUCTS

**2.1 MANUFACTURERS**

1. Acceptable Manufacturer: Pentagon Security Shutters

5 Granite Avenue

Stonewall, MB R0C 2Z0

Canada

Phone: (204) 866-705-4668

Email: sales@pentagonshutters.com

Website: www.pentagonshutters.com

**2.2 ROLLING SECURITY SHUTTER**

1. Operation Type
   * Electric Motor: Internal tubular wired motor within the axle with a progressive limit switch.
   * Motor shall be equipped with solenoid brakes, a thermal overload protection switch with automatic reset, and permanently lubricated bearings and gears.
   * Motor shall be controlled by a recessed or surface mounted key switch (momentary or maintained).
   * Key switch cylinder shall be a 1 1/8” mortise (It can be keyed alike to the building).
   * All electric components to be C.S.A. and U.L. certified.
   * Motor shall carry a five (5) year comprehensive warranty.
   * Each motor can be controlled by an individual key switch or multiple key switches.
   * Multiple motors can be controlled by an individual key switch or multiple key switches.
   * Automatic switch-off at completely up or down, plus stops at any in between position.
   * Internal gearbox allows the motor to be manually rotated under mechanical load, in order to operate the shutter in case of power failure. A stainless-steel drive shaft actuates the override gearbox. The drive shaft is connected to a universal swivel joint that connects to a removable crank handle, which you use to crank the shutter up and down.
2. Mounting Options
   * Face of wall
   * Face of wall & Under lintel
   * Between jamb & Under lintel
   * Between jamb – Face of wall
   * Face of wall – Between jamb & Face of wall
   * Face of wall – Between jamb & Under lintel
3. Curtain Series
   * 540 Series: Double wall roll-formed aluminum interlocking slat with ultra-hard resin core.
     + Height: 2 7/16 inch (62 mm)
     + Nominal Slat Thickness: 1/2 inch (13 mm)
     + Pounds Per Linear Foot: 0.374 lb./ft.
     + Colors: Arctic White, Aluminum Gray, or custom
     + Alternate slats fitted with end locks to keep shutter curtain in alignment.
4. Text

   Description automatically generatedBox Housings

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* + 6 ½ Inch (165 mm): Roll-formed aluminum box housing. Detachable front cover for future servicing and maintenance. Box housing end caps constructed of pressure die casted high-grade aluminum. Box housing width varies depending on the shutter dimensions as indicated on the shop drawings.
    - Height & Depth: 6 ½ inch (165 mm)
    - Colors: To match slats (curtain series)
  + 8 Inch (205 mm): Roll-formed aluminum box housing. Detachable front cover for future servicing and maintenance. Box housing end caps constructed of pressure die casted high-grade aluminum. Box housing width varies depending on the shutter dimensions as indicated on the shop drawings.
    - Height & Depth: 8 inch (205 mm)
    - Colors: To match slats (curtain series)
  + 10 Inch (250 mm): Roll-formed aluminum box housing. Detachable front cover for future servicing and maintenance. Box housing end caps constructed of pressure die casted high-grade aluminum. Box housing width varies depending on the shutter dimensions as indicated on the shop drawings.
    - Height & Depth: 10 inch (250 mm)
    - Colors: To match slats (curtain series)
  + 12 Inch (300 mm): Roll-formed aluminum box housing. Detachable front cover for future servicing and maintenance. Box housing end caps constructed of pressure die casted high-grade aluminum. Box housing width varies depending on the shutter dimensions as indicated on the shop drawings.
    - Height & Depth: 12 inch (300 mm)
    - Colors: To match slats (curtain series)

1. Guide Rails
   * 2 1/16 Inch (53 mm): Heavy gauge extruded aluminum guide rails with two high grade brush inserts to prevent metal-to-metal contact. When curtain exceeds 96 inches (2440 mm) in width, 66 mm guide rails are used.
     + Width: 2 1/16 inch (53 mm), Depth: 7/8 inch (22 mm)
     + Colors: To match slats (curtain series)
   * 2 1/16 Inch (53 mm) STAX: Heavy gauge extruded aluminum guide rails with two high grade brush inserts to prevent metal-to-metal contact. Two channels on the back of the guide rails for use with STAX (buildout) to build the shutter out from the mounting surface. When curtain exceeds 96 inches (2440 mm) in width, 66 mm guide rails are used.
     + Width: 2 1/16 inch (53 mm), Depth: 1 inch (25 mm)
     + Colors: To match slats (curtain series)

* 2 5/9 Inch (66 mm): Heavy gauge extruded aluminum guide rails with two high grade brush inserts to prevent metal-to-metal contact. When curtain exceeds 96 inches (2440 mm) in width, 66 mm guide rails are used.
  + - Width: 2 5/9 inch (66 mm), Depth: 7/8 inch (22 mm)
    - Colors: To match slats (curtain series)
* 2 5/9 Inch (66 mm) STAX: Heavy gauge extruded aluminum guide rails with two high grade brush inserts to prevent metal-to-metal contact. Two channels on the back of the guide rails for use with STAX (buildout) to build the shutter out from the mounting surface. When curtain exceeds 96 inches (2440 mm) in width, 66 mm guide rails are used.
  + - Width: 2 5/9 inch (66 mm), Depth: 1 inch (25 mm)
    - Colors: To match slats (curtain series)

1. Bottom Bars
   * Standard 2 1/4 Inches (57 mm): Double wall extruded aluminum with black compressible rubber weather seal insert.
     + Height: 2 1/4 inch (57 mm), Depth: 5/16 inch (8 mm)
     + Colors: To match slats (curtain series)
   * Heavy Duty 3 Inch (75 mm): Double wall extruded aluminum with black compressible rubber weather seal insert. Heavy duty channel for high security.
     + Height: 3 inch (75 mm), Depth: 1 1/2 inch (38 mm)
     + Text

       Description automatically generatedColors: To match slats (curtain series)

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1. Locking
   * Autolock: Equipped with an autolocking bracket located at the back of the box housing. When the shutter curtain is fully closed, the auto lock bracket prevents the curtain from being lifted except by means of the operator.
2. Sills
   * 1x1 Inch (25 x 25 mm) L-Sill: Single wall extruded aluminum. Provides surface for the shutter to close on.
     + Size: 1x1 inch (25 x 25 mm)
     + Colors: To match slats (curtain series)
   * 1x2 Inch (25 x 50 mm) L-Sill: Single wall extruded aluminum. Provides surface for the curtain to close on.
     + Size: 1x2 inch (25 x 50 mm)
     + Colors: To match slats (curtain series)
   * 1x1 Inch (25 x 25 mm) U-Sill: Single wall extruded aluminum. Provides surface for the curtain to close on.
     + Size: 1x1 inch (25 x 25 mm)
     + Colors: To match slats (curtain series)
3. STAX (Buildout)
   * 3/8 Inch (10 mm): Single wall extruded aluminum. STAX slide onto guide rails to build the shutter out from the mounting surface.
     + Depth: 3/8 inch (10 mm)
     + Colors: To match slats (curtain series)
   * 1 Inch (25 mm): Single wall extruded aluminum. STAX slide onto guide rails to build the shutter out from the mounting surface.
     + Depth: 1 inch (25 mm)
     + Colors: To match slats (curtain series)

PART 3 – EXECUTION

**3.1 EXAMINATION**

1. Verify opening sizes, tolerances, and site conditions to determine if acceptable for installation in accordance with shop drawings.
2. Examine conditions of substrates, supports, solid wood backing, and other conditions to determine if acceptable for installation in accordance with manufacturer's installation instructions.
3. Correct all unsatisfactory conditions that are not acceptable prior to commencing the installation.

**3.2 PREPARATION**

1. Ensure entire mounting surface is completely flat and level prior to commencing the installation. Clean the mounting surface.
2. Prepare the mounting surfaces using the methods recommended by the manufacturer in accordance with shop drawings and installation instructions.

**3.3 INSTALLATION**

1. Install in accordance with manufacturer’s installation instructions and shop drawings.
2. Ensure guide rails, box housing, and hardware are mounted level and straight, to allow smooth operation.
3. Comply with all local and governing code requirements.
4. Use caution not to break or damage the shutter during installation. Follow the manufacturer’s recommendations.
5. Coordinate installation of backing materials around shutter mounting surface as specified in Section 064800.
6. For shutters operated by an electric motor, coordinate installation of electrical service as specified in Section 260800.
7. If curtain is shipped separately, install curtain roll. Follow manufacturer’s safety recommendations on heavy curtains.

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1. Follow manufacturer's instructions. Test for proper operation and adjust as necessary to allow proper operation without binding or distortion.
2. Adjust hardware and operating assemblies for smooth and noiseless operation.

**3.5 CLEANING AND PROTECTION**

1. Clean shutter and all components using non-abrasive materials and methods recommended by manufacturer as specified in Section 017400.
2. Protect installed shutter(s) from damage during remaining construction until completion of project.

**3.6 DEMONSTRATION**

1. Demonstrate proper operation to owner’s personnel and instruct them on shutter maintenance procedures.
2. Provide user manual to owner’s personnel.



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