

ARCHITECTURAL SPECIFICATIONS

Section 08180
2004 Master Format Section 08 11 63

Mon-Ray 800 Series Acoustical Aluminum Storm Doors for Exterior Application

PART 1 GENERAL

1.00 SCOPE

- A. This is a high performance aluminum storm door Specification. The Specification provides the Bidders with rigid standards for product materials, workmanship and performance that must be complied with in every respect.
- B. It is the intent of this Specification to provide the Owner with proper product materials, workmanship, design, application, performance, installation and warranty coverage. The Specification describes specific test requirements, system performance, quality assurance tests, and product material requirements required to meet the Owner's desired quality level.

1.01 WORK INCLUDED

- A. Furnish and install high performance aluminum storm doors, complete with hardware, and related components as shown in drawings and specified in this Section.
- B. All storm doors are to be Mon-Ray Series 800 as manufactured by Mon-Ray, Inc. Other manufacturers requesting approval to bid their product will be viewed as alternate bids and must submit a request for approval 10 days prior to bid for consideration.

1.02 REFERENCES

- A. ANSI/AAMA 1002 10-93 "Voluntary Specification for Insulating Storm Products for Windows and Sliding Glass Doors"
- B. ASTM E 283-91 "Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors"
- C. ASTM E 330-91 "Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference"
- D. ASTM E 331-86 "Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Air Pressure Difference"
- E. AAMA 502-90 "Voluntary Specification for Field Testing of Windows and Sliding Glass Doors"
- F. ASTM E 90-90 "Laboratory Measurement of Airborne Sound Transmission of Building Partitions"
- G. ASTM E 413-87 "Determination of Sound Transmission Class (STC)"

1.03 SYSTEM PERFORMANCE

- A. Test Unit Size: Test units shall be the sizes listed below. Sill of the test buck shall have a 7 degree slope to the exterior.
 - 1. Fixed panel storm doors: 3'0" (.914 m) wide x 6'8" (2.03 m) high
 - 2. Removable panel storm doors: 3'0" (.914 m) wide x 6'8" (2.03 m) high
 - 3. Self Storing storm doors: 3' 0" (.914.m) wide x 6' 8" (2.03 m) high
- B. Air Leakage Test: The storm door shall be subjected to an air leakage test in accordance with ASTM-E 283-91. Storm door units tested by an Independent Laboratory. Air leakage shall meet the following performance requirements.

1. Air leakage for fixed panel and removable panel storm doors shall not exceed 0.50 CFM (.23 l/s) per lineal foot of net sash crack perimeter at both a positive (infiltration) and negative (exfiltration) static pressure of 1.56 PSF(76.6 Pa) at a 25 mph (40.23 kmph) wind.
 2. With the self storing storm sash in the closed position, air leakage in the storm door shall not exceed 0.50 CFM (.23 l/s) per lineal foot of sash crack at both positive and negative static pressure of 1.56 PSF(76.6 Pa) at a 25 mph (40.23 kmph) wind.
- C. Uniform Structural Load Test: With storm door sash in the closed position, the door shall be tested in accordance with ASTM E 330-91. Apply a minimum exterior positive and negative load of 22.5 PSF for fixed panel, removable panel, and self-storing storm doors. Each load shall be maintained for 10 seconds. At the conclusion of the test, there shall be no glass breakage, damage to fasteners, hardware or any other damage causing the storm door to be inoperable.
- D. Water Resistance Test: With storm door and sash in the closed position, the door assembly shall be subjected to a water resistance test in accordance with ASTM E 331-86. When a positive static pressure of zero PSF has been stabilized, 5 gallons (18.9 l) of water per hour per square foot of window area shall be applied to the exterior face of the door, for a continuous period of 15 minutes. No water shall run over the interior edge of the sloped test buck sill.
- E. Concentrated Load and Glass Adherence Tests: When tested in accordance to ASTM E 987-88. A concentrated load equal to the weight of the sash, but not less than 15 pounds (6.8 kg) acting parallel to the plane of the glass in a direction tending to pull the sash rails off the glass and applied alternately for three minutes at the center of all sash rails of the glazed sash, shall not cause the sash rails to deflect more than 1/8" (3.18 mm) each.
- F. Safety Drop Test: When the glazed lower sash of a self storing storm door is allowed to "free fall" the maximum distance provided for by the latch positions, it shall automatically stop every two inches in the next lower latch position.
- G. Glass and Screen Insert Squareness Test: Take a measurement of the distance between diagonally opposite pairs of corners of an insert with a steel rule. The difference between these measurements shall not be more than 1/4" (6.36 mm).
- H. Sag Test: The door with all sash inserts in place, and the latch and closer removed, shall be opened to 90 degrees. A load of 40 lbs. (18.14 kg), distributed equally on both sides of the lock stile at the center point, shall be applied in a downward direction by the use of dead weights. The load shall be maintained for 3 minutes. After removal of the load the permanent sag shall not exceed 0.063" (1.6mm).
- I. Acoustical Performance: An acoustical test report shall be furnished with the bid stating that the secondary glazing door to be furnished has been tested by it self in accordance with ASTM E90-90. The STC rating of the self storing storm door shall be no less than 30 when glazed with 1/4" (6.36 mm) clear laminated (1/8" - .03 - 1/8") (3.18 m -.762 m -3.18 m) glass. Doors with fixed glass or removable inserts shall have an STC of 32 when glazed with clear 1/4" (6.36 mm) laminated (1/8" - .03 - 1/8") (3.18 m -.762 m -3.18 m) glass.

1.04 SUBMITTALS

- A. Shop Drawings: Submit drawings under provisions of Section 01300. Include dimensions, relationships to construction of adjacent work, component anchorage, type of caulking, door locations, installation methods and installation materials. Dimensions of all doors and components will be the responsibility of the successful Bidder.
- B. Samples: Submit appropriate color Samples for Architects review and approval.
- C. Test Reports: Submit Independent Laboratory Test Reports verifying storm doors meet the specified requirements for air leakage, water resistance, uniform structural load, deglazing and sound transmission.
- D. Certificates: Furnish an affidavit in triplicate from the Door Manufacturer, certifying that materials used on the Project conform to these Specifications and are identical in all appropriate respects to the storm doors identified in the Independent Laboratory Test Reports.

1.05 QUALITY ASSURANCE

A. Qualifications: Fabrication shall be by a Door Manufacturer who can furnish evidence to the Owner that it is, and has been for not less than five (5) consecutive years, regularly engaged in the manufacturing of aluminum Storm door units similar in design and performance to those specified for this Project.

B. Pre-award Installation:

1. Provide a complete installation of one (1) storm door as specified and selected by the Owner. Storm door mock-up to be completed within seven (7) days of the bid opening date. This storm door and installation shall be for the review of the product and installation. The Owner at his discretion may have the storm door tested by an Independent Test laboratory to verify compliance of the product with these Specifications. The cost for pre-award testing, by the Independent Laboratory shall be paid by Owner. Any deficiencies discovered on the storm door by the testing and the Bidder at no cost to the Owner will correct deficiencies in any similar models used in the project.

C. Post Installation Field Testing:

1. The Owner will randomly select ___ storm doors after installation for field-testing.
2. Storm door field-testing will be in accordance with AAMA 502-90 using Test Method B. After installation and before final payment, up to two percent (2%), but not less than two (2) storm door units may be randomly selected by the Owner and subjected to an air leakage and water resistance tests. Air leakage and water resistance test results shall meet the specified requirements. If any randomly tested storm door fails, the Successful Bidder shall make necessary corrections until satisfactory results are achieved and make corrections to all other storm door units installed as part of this Project.
3. All costs associated with the Post Installation Field Testing and required repairs or replacements shall be borne by the Successful Bidder. These tests may be performed by either the Storm Door Manufacturer's technical service personnel using accurately calibrated and approved air leakage testing equipment, or by an approved Independent Test Laboratory. All tests shall be conducted in the presence of the Owner, or the Owner's Representative.

D. Reference List:

1. The Bidder shall furnish with its bid a Reference List from the Storm Door Manufacturer containing not less than ten (10) completed projects with storm door units of similar to the storm door units specified for this Project. At least five (5) of the referenced projects shall be at least three (3) years old. As part of the bid evaluation to determine life cycle cost and best value for the Owner, consideration will be given as to age, longevity, performance and extended product life of these installations. The Reference List shall include the name, address and phone number of the project, and the date the project was completed.
2. If an installation sub-contractor is used, the subcontractor must furnish a list of at least five (5) projects similar in scope to this project with the base bid.
3. The Owner or Owners Representative has the right to deem the bidder as "non-responsible" or "non-qualified", based upon inspection of any projects performed by the bidder as a contractor, sub-contractor or manufacturer, if the products or workmanship is determined to be unacceptable by the Owner or Owners Representative.

1.06 WARRANTY

- A. **Product Warranty:** The successful Bidder shall furnish a positively written, non-prorated and fully transferable warranty from the Door Manufacturer against defects in materials and workmanship of the storm door units, under normal use, for a period of ten (10) years from the date of acceptance of the installed storm door units by the Owner. The warranty shall state that the Door Manufacturer shall provide all materials required to repair or replace defective materials or workmanship. The warranty shall further state that parts used to manufacture the storm door units, or suitable replacements, shall be available throughout the warranty period.
- B. **Installation Warranty:** The Successful Bidder shall furnish a written warranty against defects in the installation workmanship and materials for a period of three (3) years from the date of acceptance by the Owner. Installation warranty work will be performed at no cost to the Owner.

PART 2 PRODUCTS**2.01 ACCEPTABLE MANUFACTURERS**

- A. Mon-Ray, Inc. (Manufacturer of Mon-Ray 800 Series Acoustical Storm Doors)
801 Boone Avenue No.
Minneapolis, MN 55427-4432
Phone: 800-544-3646 Fax: 612-546-8977 Website: www.monray.com
- B. Alternates: Under provisions of Section 01030.

2.02 MATERIALS

- A. **Aluminum:** All frame, sash and screen members shall be accurately extruded aluminum prime alloy 6063-T6. The minimum nominal wall thickness of all frame, sash, screens and Z-bar members shall not be less than 0.050" (1.27 mm).
- B. **Glazing:** Standard glazing for fixed panel acoustical storm doors shall be 3/16" (4.76 mm) clear tempered. Standard glazing for removable panel, and self storing acoustical storm doors shall be 1/8" (1.27 mm) clear tempered. Optional glazing, based on size, performance or specific project requirements, include 3/16" (4.76 mm) clear tempered, 1/4" (6.36 mm) clear tempered or 1/4" (6.36 mm) clear laminated (1/8" - .03 - 1/8") (3.18 m - .762 m - 3.18 m) glass. The glass shall be glazed into the sash with a one-piece wrap-around, flexible vinyl glazing channel. All corners shall be secured and neatly tucked. All glass shall be factory washed.
- C. **Weather-strip:** All weather-strip shall be silicone treated, UV stabilized polypropylene pile with an integral polypropylene fin running through the center. Weather-stripping shall be bonded to a non-shrinking backing, which shall slide into extruded ports in the Z-bar and aluminum storm frame.
- D. **Kick Panel:** The kick panels are securely installed below the window unit in self-storing doors. The Owner shall have the choice of one of two types of stationary kick panels. Kick panels shall be either 1/4" (6.36 mm) laminated glass (1/8"-.03-1/8") (3.18 m -.762 m -3.18 m), or 1/4" (6.36 mm) tempered masonite with .040 (1.02 mm) embossed seamless aluminum sheets laminated to both the exterior and interior face of the masonite core. Both the exterior and interior embossed aluminum facings shall have the same finish as the door frame.
- E. **Screens:** All removable panel doors, if required by the specification, will be furnished with and interchangeable screen insert. All self-storing doors shall have a half screen mounted in the sash track of the storm frame. The screen shall be pre-bowed, extruded 6063-T6 tubular aluminum with a nominal wall thickness of 0.055" (1.39 mm). Mitered corners shall be joined neatly by means of solid T6 tempered aluminum corner gussets, securely peened within the screen frame extrusion. The screen cloth shall be fiberglass 18 x 14 mesh in a charcoal color and secured into screen frame with a vinyl spline. The screen inserts if removed will not affect the operation, efficiency or performance requirements of the storm door window. NOTE: Fiberglass 18 x 16 mesh shall not be acceptable.

2.03 DOOR TYPE AND OPERATION

- A. Type: All doors shall be fixed panel, removable panel, or self-storing aluminum sash. Storm door frame depth shall be 7/8" (22.2 mm) for standard 800 Series Doors. All door sash and screen inserts shall be easily removable to the interior for cleaning. The entire storm door shall be designed and constructed in a manner that allows for easy replacement of all parts, hardware and weather-stripping.
- B. Fixed Panel Doors: Fixed panel doors shall have the glass glazed directly into the door frame using a one piece wrap-around vinyl marine glazing gasket.
- C. Removable Panel Doors: All removable panels shall be held in place by extruded aluminum turn buttons. Non-operating sash of removable panel doors shall be fully weather-stripped around the sash perimeter. If required by the specifications an aluminum screen insert will be furnished in addition to the storm panel.
- D. Self-Storing Doors: Operating sash and frame shall have a two-track, self storing sash and screen design. Operating surfaces to be completely separated from metal-to-metal contact. All vertical sliding sash shall operate in a vinyl track with predetermined processed ventilating positions. The vinyl tracks will be secured into the door frame through the use of extruded ports. The vinyl track and spring loaded pin-locks shall provide a "ratchet action" design with automatic ventilation settings every two (2) inches (5.08 cm). In the closed and fully open positions the operating sash shall lock in non-ratcheted, secure holes. The pin-locks shall engage automatically into predetermined ventilating positions processed into each of the side storm frames.

2.04 HARDWARE

- A. All assembly and installation fasteners and screws incorporated in the storm door shall be non-magnetic, stainless steel. All hardware parts shall be of aluminum, stainless steel, nylon, or other non-corrosive materials compatible with aluminum. NOTE: Wrought metal or plastic parts will not be acceptable.
- B. Latch: The latch shall consist of a heavy-duty cast aluminum thumb push button on the exterior handle and push latch on the interior incorporating a slide lock, steel pin and spring stop.
- C. Closer: The closer shall be adjustable, spring loaded, heavy pneumatic with "hold open" feature. Wright models 170 or 150 are acceptable.
- D. Stop: The stop shall have a check chain with spring safety cushion.
- E. Hinges: The door frame shall be securely mounted to the Z-Bar with three (3) stainless steel, double leaf hinges with self lubricating oil-lite bushings.

2.05 FABRICATION

- A. Frame and Sash Construction:
 - 1. Door Frame: The storm door frame shall be constructed of tubular aluminum extrusions having an overall minimum depth of .875" (22.2 mm) and a minimum wall thickness of .055" (1.39 mm). Mitered corners shall be neatly joined by means of 6063-T6 tempered solid aluminum corner gussets with an overall width of .625" (15.87 mm), and average wall thickness of .250" (6.35 mm). Each corner gusset shall be securely anchored to the door frame by four (4) non-magnetic, stainless steel screws. The door frame shall be pre hinged to the Z-Bar (right or left as viewed from the exterior) by the Door Manufacturer.
 - 2. Window Frame: All aluminum head, jamb and sill members for the master frame and all frame expanders shall have a minimum wall thickness of 0.050 "(1.27 mm). All members to be extruded 6063-T6 aluminum assembled in a secure and workman like manner to assure lasting weather resistant construction. Frame joints shall be butt-type, neatly joined and secured by means of non-magnetic, stainless steel screws anchored into integral screw ports. Vinyl weather-stripping and tracks shall be shaded from direct sunlight by the frame and sash members.

- 3. Sash: All sash members shall be extruded 6063-T6 aluminum with a minimum wall thickness of 0.055 “ (1.39 mm). Mitered corners shall be joined by non-magnetic stainless steel corner keys, securely peened on the inside of the sash insert. All sharp corners of the sash shall be deburred and smoothed. Sash meeting rails shall interlock in the closed position. All removable panels and operating sash shall have a full length extruded lift handle as part of the sash rail. The lift handle shall project 7/16” (11.1 mm) to the interior to allow adequate area to maintain a sure finger grip.
- B. Z-Bar: Shall be accurately extruded aluminum prime alloy 6063-T6. Wall thickness shall be .062” (1.57 mm). Pre-drilled installation holes shall be uniform and accurately positioned for maximum support. Weather-strip shall have specially extruded ports and be secured to prevent shrinkage, movement or loss.

2.06 FINISHES

A. Organic (Painted Finish)

- 1. Finish all exposed areas of aluminum storm doors and components with a factory applied spray coating in accordance with Aluminum Association Designation:

<u>*Description</u>	<u>AA Designation</u>	<u>AAMA Guide Specification</u>
Siliconized polyester baked enamel	AA-M12-C41-RX1	AAMA 2603

- 2. Standard colors shall be one of the manufacturer’s three standard Poly-Cron III painted finished: White, Bronze or Tan. The head of all assembly and installation screws shall be painted the same color as the master frame of the storm door.
- 3. Optional colors: Available in polyester enamel or Kynar paints to conform to AAMA 2603 or 2605. Computer matching capability. Color samples available upon request.

B. Anodic (Anodized Finish)

- 1. Finish all areas of aluminum storm doors and components with electrologically deposited color in accordance with the following Aluminum Association Designation:

<u>*AA Designations</u>	<u>Architectural Class</u>	<u>Description</u>	<u>AAMA Guide Specification</u>
AA-M10-C22-A31/41	II/I	Clear Anodized	AAMA 607.1-92

- 2. Standard anodized color is 202 R1. Optional anodized finishes conform to AAMA 608.1, in the following colors: Clear 204 R1 and 215 R1, Champagne, Gold, Light Bronze, Medium Bronze, Dark Bronze, Deep Bronze and Black. Other custom anodized colors available upon request at an additional charge.

2.07 ACCESSORIES

- A. French Style Double Door Kit: A French Style Double Door Kit shall consist of one 6063-T6 aluminum astragal bar which is mounted to the latch side of the stationary door by means of a 1” deep expander, securely fastened to the stationary door frame. The astragal and expander shall be cut to the full height of the door frame and have a full length polypropylene pile weather-strip with a vinyl fin or a compression bulb weather-stripping securely installed in an extruded port in the astragal bar. Two 3” aluminum surface-mounted slide bolts shall be fastened to the astragal bar, top and bottom. When engaged into the head of the door casing and threshold, these bolts shall hold the door in a stationary position. When the slide bolts are slid open the door and attached astragal bar shall swing open to provide an unrestricted clear opening. Identical door handles shall be mounted on the exterior of the doors. An interior latch and handle is mounted on the operating door. A latch strike plate is fastened to the astragal bar of the stationary door and adjusted to hold the operating door shut.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Bidders are expected to visit the job-site and make a complete survey of the Project prior to bid. All storm door openings will be measured by the Bidder for proper sizing of the new storm doors. Failure to do so will not relieve the Successful Bidder from the need to furnish any and all materials, which may be required, in accordance with the Specifications, without any additional cost to the Owner.
- B. Inspect openings before installation to assure surfaces are clean and dry. Verify that storm door opening and masonry openings are correct and the threshold is level.

3.02 PREPARATION

- A. Remove new storm door units from crating and packaging material. Verify that all parts and accessories are included. All storm door units and accessories shall be securely stored, upright and protected from the weather.
- B. Remove old storm doors and accessories from the door opening. Scrape and remove existing sealant from the opening which will interfere with the installation of new storm doors.
- C. Install only aluminum tubing or preservative treated lumber, as required, for all blocking.

3.03 INSTALLATION

- A. Storm doors shall be installed in strict accordance with the Manufacturer's instructions and Shop Drawings.
- B. The acoustical storm door units shall be installed so that the exposed surfaces are uniformly proportioned, both inside and out. When mounted the installed storm door must provide a minimum 3 1/2" air space between itself and the prime door it is installed in tandem with. Proper tolerances must be allowed to install the storm door square and aligned.
- C. Anchors should be not less than #8 non-magnetic, stainless steel screws. The length of the installation screws shall allow a minimum of one half (1/2) inch (12.7 mm) to penetrate into the door frame or blocking. Anchors must be adequate to handle thermal and building movement and specified uniform load requirements.
- D. Provide single-component or multi-component, low-modulus, non-sag sealant; comply with ASTM C920, Type S or M, Grade NS, Class 25.

3.04 ADJUST AND CLEAN

- A. Operate installed storm doors to assure a proper installation has occurred. Make any appropriate adjustments.
- B. Remove excess sealant, dirt, door labels and wipe dust off frame and glass.