

# ARCH<sup>®</sup>

## RESISTOR IMPACT SERIES

### IMPACT WALL PBS-383<sup>™</sup>

### CURTAIN WALL & GLASS

### SYSTEM

### SMALL MISSILE



APPROVED

#### GUIDE SPECIFICATIONS\* DIVISION 08 – OPENINGS

#### Section 08 44 13 Glazed Aluminum Curtain Walls (or) Section 08 88 19 Hurricane-Resistant Glazing

**SPECIFIER NOTE:** As a true *Single-Source Supplier* of architectural aluminum and glass products, Arch recommends combining glass and framing requirements in this proprietary specification section. The following Guide Specifications represent independent laboratory tests and Metro-Dade County, FL Product Notice of Acceptance for Arch's Resistor Impact Series – (hurricane resistant products) as herein described. Approval certification is based on the "complete system" of aluminum and glass products described; as manufactured by Arch Aluminum & Glass Co., Inc. ensuring Single-Source responsibility.

#### PART I – GENERAL

##### 1.01 Summary

A. Section includes: Arch® Aluminum Curtain Wall (Pressure Plate) System, Captured Glazing, and includes perimeter trims, stools, accessories, shims & anchors, system & perimeter sealing of curtain wall assemblies, and glass.

1. System Type Includes:

##### Resistor Impact Wall PBS-383<sup>™</sup>, Curtain Wall System

- A. Profile is 2½" x 7<sup>3</sup>/<sub>8</sub>" for ½" glazing
- B. ½" Annealed / Tempered Laminated Glass

Miami-Dade County, Florida Notice of Acceptance is **05-0919.10**

Florida State Product Approval is **FL6355.1**

This product is designed to comply with the requirements of the High-Velocity Hurricane Zone of the Florida Building Code (FBC). For locations where the pressure requirements do not exceed the Design Pressure Rating values indicated in the approved drawings, refer to the above referenced NOA drawings and charts for accepted configurations, limits and anchor requirements.

B. Related Sections:

- 1. 08 32 13 Sliding Aluminum-Framed Glass Doors
- 2. 08 42 13 Aluminum-Framed Entrances
- 3. 08 42 26 All-Glass Entrances
- 4. 08 43 13 Aluminum-Framed Storefronts
- 5. 08 80 00 Glazing

#### 1.02 References (Industry Standards)

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM A164 Specifications for Aluminum, Stainless Steel, or Plated Steel Fasteners
  - 2. ASTM B 221 Specifications for Aluminum Extrusions
  - 3. ASTM E 283 Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Wall, and Doors
  - 4. ASTM E 330 Test Method for Structural Performance of Exterior Windows, Curtain Wall, and Doors by Uniform Static Air Pressure Difference
  - 5. ASTM E 331 Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
  - 6. ASTM C 236 Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box [*Withdrawn 2001 & replaced with:*] ASTM C 1363: Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus
  - 7. ASTM C 1036 Standard Specification for Flat Glass
  - 8. ASTM C 1048 Standard Specification for Heat-Treated Flat Glass – Kind HS, Kind FT Coated and Uncoated Glass
  - 9. ASTM C1172 Standard Specification for Laminated Architectural Flat Glass
- B. American National Standards Institute (ANSI)
  - 1. ANSI Z97.1 Standards for Glazing Materials used in Buildings – Safety Performance Specifications & Methods of Test
- C. Consumer Products Safety Commission (CPSC)
  - 1. 16CFR 1201 Safety Standard for Architectural Glazing Materials
- D. Florida Building Code (FBC)
  - 1. TAS 201-94, Test Criteria for Small Missile Impact
  - 2. TAS 202-94, Test Criteria for:
    - a. Air Infiltration
    - b. Uniform Static Air Pressure
    - c. Water Resistance
  - 3. TAS 203-94, Test Criteria for Cyclic Wind Pressure
- E. \*Miami-Dade County Building Code as adopted by FBC, SFBC, IBC, SBCCI, ASTM 1886, ASTM 1996, and ASCE 7 as related to products approved for use in the High-Velocity Hurricane Zone of the Florida Building Code.
- F. American Architectural Manufacturers Association (AAMA)
  - 1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum
  - 2. AAMA 1503 Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections
  - 3. AAMA 2603 Voluntary Specification for Performance Requirements and Test procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
  - 4. AAMA 2604 Voluntary Specification for Performance Requirements and Test procedures for High-Performance Organic Coatings on Aluminum Extrusions and Panels
  - 5. AAMA 2605 Voluntary Specification for Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

### 1.03 System Description

#### A. Glazed Aluminum Curtain Wall System Performance Requirements:

1. Project Wind Load:
  - a. Design Pressures shall be based on:  
\_\_\_\_\_ Building Code; \_\_\_\_\_ Edition
  - b. Specified framing system, assemblies, anchors and anchoring methods shall withstand wind load design pressures of \_\_\_\_\_ PSF inward and \_\_\_\_\_ PSF outward.
2. ASTM E 283, Air Infiltration:

When tested in accordance with ASTM E 283 at a static pressure differential of 6.24 PSF, air infiltration rate shall not exceed 0.06 cfm/ft<sup>2</sup> of fixed area.

3. ASTM E 330, Uniform Load:

When tested in accordance with ASTM E 330, at a static air design load of 40 PSF applied in positive and negative directions, there shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times of the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of the clear span shall occur.

4. ASTM E 331, Water Resistance:

When tested in accordance with ASTM E 331 at a static pressure differential of 10 PSF, there shall be no uncontrolled water penetration.

5. ASTM C 236 (C 1363), Thermal Transmittance & CRF:

When tested in accordance with ASTM C 236 & AAMA 1503, the thermal performance ratings shall conform to the following:

- a) CRF shall not be less than 55
- b) "U" value\* shall not be more than 0.57

\*Expressed in BTU / HR/FT<sup>2</sup>/°F

### 1.04 Submittals

A. General: Prepare and submit specified submittals in accordance with "Division 1 General Requirements, Submittal Procedures" as therein defined and including but not limited to; product data and specifications, shop drawings, finish colors, samples, quality assurance documents, product certificates, and manufacturer's installation instructions.

B. Quality Assurance / Control Submittals:

1. Test Reports: Submit certified test reports that indicate compliance with specified performance requirements.

### 1.05 Quality Assurance

A. Qualifications:

1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to the manufacturer.
2. Manufacturer Qualifications:
  - a. **Single-Source:** Manufacturer capable of providing fully tested and certified Hurricane-Resistant ALUMINUM and GLASS SYSTEM as a Single Source supplier.
  - b. Manufacturer capable of providing field service representation during construction, approving acceptable installer, and approving application method.

B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

### 1.06 Delivery, Storage and Handling

A. Comply with Section 01 60 00 Product Requirements.

B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Handle packages with care to avoid damaging contents. Do not drop packages from any height.

D. Storage and Protection: Store materials off ground and protect from exposure to detrimental weather conditions, other construction trades and activities. Stack materials neatly and evenly and avoid crushing packages.

### 1.07 Warranty

A. Project Warranty: Refer to "Division 1 General Requirements, Work Covered by Contract Documents" for project warranty conditions.

B. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's product warranty for Glazed Aluminum Curtain Wall Systems as follows:

1. The Resistor Impact Series PBS-383™ - Small Missile Curtain Wall and Glass System shall be guaranteed against defects in materials or workmanship as defined by manufacturer's published Limited Warranty for a period of two (2) years from date of shipment.
2. The 1/2" Annealed / Tempered Laminated Glass shall be guaranteed against defects in materials and/or workmanship as defined by manufacturer's published Limited Warranty for a period of five (5) years from date of shipment.

## PART 2 – PRODUCTS

### 2.01 Manufacturers (Acceptable Manufacturers & Products)

A. Manufacturer: Arch Aluminum & Glass Co., Inc.

Address: 10200 N.W. 67<sup>th</sup> Street  
Tamarac, FL 33321

Contact: Telephone: (800) 432-8132  
Facsimile: (954) 724-9637

Website: [www.archaluminum.net](http://www.archaluminum.net)

B. Products:

#### Resistor Impact Wall PBS-383™ Curtain Wall System

1. 2½" x 7<sup>3</sup>/<sub>8</sub>" profile for ½" glazing
2. ½" Annealed / Tempered Laminated Glass

C. Substitutions:

[Specifier Note: Use of the phrase "or equal" / "or approved equal," or other similar phrases may likely eliminate Single-Source manufacturer responsibility. Where certified hurricane-resistant products are concerned, such phrases require extensive fiduciary responsibilities (procedural, legal, and regulatory) for determining "or equal."]

1. General: Refer to "Division 1 General Requirements, Work Covered by Contract Documents" for procedures and submission requirements.

### 2.02 Materials

A. Aluminum – Glazed Aluminum Curtain Walls

1. Framing Sections shall conform to the Material Standards of ASTM B 221; 6063 – T5 and/or 6005 – T6 Alloy & Temper.
2. Framing Sections wall thickness designs shall provide structural strength sufficient to comply with specified performance requirements.
3. Tolerances: References to tolerances for wall thicknesses and other cross-sectional dimensions of framing sections are nominal and shall comply with AA Standards & Data.

B. Glazing:

Glass shall be 1/2" (nom.) Annealed / Tempered Laminated Glass as manufactured by Arch Aluminum & Glass consisting of:

One Outboard Lite 1/4" annealed glass x  
One interlayer .060" Saflex® IIG (PVB) by Solutia, Inc. x  
One Inboard Lite 1/4" Fully Tempered Glass

**1. Laminated Glass Composition:**

**A. OUTBOARD PANE:** 1/4" Annealed Glass

[Specifier Note: Amend Paragraphs below to suit project requirements]

- a. \_\_\_ Clear: ASTM C 1036 Sections 4.1.1, 4.1.1.1 (Type 1 – Transparent Glass, Flat, Class 1, Clear)
- b. \_\_\_ Other: ASTM C 1036 Section 4.1.1.2 (Class 2 – Tinted, Heat Absorbing and Light Reducing)
  - 1. \_\_\_ Solar light Transmittance
  - 2. \_\_\_ Visible light Transmittance
  - 3. \_\_\_ Solar Reflectance (Front Surface)
  - 4. \_\_\_ Solar Reflectance (Back Surface)
  - 5. \_\_\_ Visible Reflectance (Front Surface)
  - 6. \_\_\_ Visible Reflectance (Back Surface)
  - 7. \_\_\_ Shading coefficient (SC)
  - 8. \_\_\_ Solar Heat Gain Coefficient
  - 9. \_\_\_ UV screening, up to 380 nm
  - 10. \_\_\_ Specific gravity
  - 11. \_\_\_ Thermal conductivity (U value)
  - 12. \_\_\_ Coefficient of thermal expansion
  - 13. \_\_\_ Emissivity (Front Surface)
  - 14. \_\_\_ Emissivity (Back Surface)

**B. INTERLAYER:** Saflex® IIG, 0.060" PVB by Solutia  
(Select Aesthetics)

- 1. \_\_\_ Clear
- 2. \_\_\_ Tint (color): \_\_\_\_\_
- 3. \_\_\_ Transparency:
  - a. \_\_\_ Clear
  - b. \_\_\_ Other: \_\_\_\_\_

**C. INBOARD PANE:** 1/4" Fully Tempered Glass

[Specifier Note: Amend Paragraphs below to suit project requirements]

- a. \_\_\_ Clear: ASTM C 1036 Sections 4.1.1, 4.1.1.1 (Type 1 – Transparent Glass, Flat, Class 1, Clear)
- b. \_\_\_ Other: ASTM C 1036 Section 4.1.1.2 (Class 2 – Tinted, Heat Absorbing and Light Reducing)
  - 1. \_\_\_ Solar light Transmittance
  - 2. \_\_\_ Visible light Transmittance
  - 3. \_\_\_ Solar Reflectance (Front Surface)
  - 4. \_\_\_ Solar Reflectance (Back Surface)
  - 5. \_\_\_ Visible Reflectance (Front Surface)
  - 6. \_\_\_ Visible Reflectance (Back Surface)
  - 7. \_\_\_ Shading coefficient (SC)
  - 8. \_\_\_ Solar Heat Gain Coefficient
  - 9. \_\_\_ UV screening, up to 380 nm
  - 10. \_\_\_ Specific gravity
  - 11. \_\_\_ Thermal conductivity (U value)
  - 12. \_\_\_ Coefficient of thermal expansion
  - 13. \_\_\_ Emissivity (Front Surface)
  - 14. \_\_\_ Emissivity (Back Surface)

**D. Entrances:** The following Resistor Impact Series, Hurricane-Resistant Aluminum Entrances with Glass & Glazing, Door Hardware, and Components by Arch Aluminum & Glass Co., Inc. are approved for use with Impact Wall 3000:

[Specifier Note: Amend Paragraph below to suit project requirements, or Entrances may be Specified Separately]

- 1. \_\_\_ Resistor Impact Door 3000, Large Missile
- 2. \_\_\_ Resistor Impact Door 3000, Large Missile with Panic
- 3. \_\_\_ Resistor MAGNUM™ Impact Door, Large Missile
- 4. \_\_\_ Resistor MAGNUM™ Impact Door, Large Missile, Panic

**2.03 Accessories**

- A. Fasteners: Where exposed fasteners shall be aluminum, stainless steel, or plated steel.
- B. Perimeter anchors: Perimeter anchors shall be aluminum, stainless steel, or plated steel. Where steel anchors are used, provide insulation between steel and aluminum materials to prevent galvanic action.
- C. Glazing Gaskets shall be of Extruded EPDM.

**2.04 Related Materials**

- A. Sealants: Refer to Section 07 92 00 Joint Sealants
- B. Hardware: Refer to Division 08 70 00 Hardware
- C. Glass and Glazing: Refer to Division 08 80 00 Glazing (other)

**2.05 Fabrication**

- A. Resistor Impact Wall PBS-383™ – Small Missile Curtain Wall Framing & Glass System Fabrication:
  - 1. System components shall be fabricated and assembled according to the manufacturer's installation instructions with secure, flush, sealed, and accurately fitted hairline joints.
  - 2. Locate fasteners, anchors, and attachments to conceal from view to greatest extent possible.
  - 3. Maintain minimum perimeter clearances, shim spacing, and perimeter seals according to manufacturer's installation instructions and AAMA Installation of Aluminum Curtain Walls Manual recommended practices.

**B. Limitations:**

- 1. Product approval applies to single and multiple unit applications of the Resistor Impact Wall PBS-383™ – Small Missile Curtain Wall and Glass System and may be used in conjunction with approved entrances.

**Refer to current Product Notice of Acceptance for:**

- a. Approved sizes and configurations, Structural Loads, Design Pressures, fastener types and locations as based on substrate types, and applicable installation locations.
- b. Graphs illustrating Design Pressure Rating versus mullion height (span) and mullion spacing (tributary width); with and without intermediate horizontals.
- c. Graphs illustrating Design Pressure Rating versus anchor types and quantity.

**2.06 Finishes**

[Specifier Note: Amend Paragraph below to suit project requirements]

- A. Standard Anodized Finish:  
Aluminum extrusions shall be given a caustic etch followed by an anodic oxide treatment to obtain a:
  - 1. **CLEAR ANODIZED FINISH:** AA-M12C22A31, AAMA 611, Architectural Class II (0.4 mil thick clear anodic coating)
  - 2. **DARK BRONZE COLOR ANODIZED FINISH:** AA-M12C22A44, AAMA 611, Architectural Class I (0.7 mil thick electrolytic deposited color anodic coating)
  - 3. **BLACK COLOR ANODIZED FINISH:** AA-M12CSSA44, AAMA 611, Architectural Class I (0.7 mil thick electrolytic deposited color anodic coating)
- B. Optional Anodized Finish: [Specify] \_\_\_\_\_
- C. Factory Standard Powder Coat Paint Finish:

1. **ARCHKOTE 1000™ POWDER COAT PAINT FINISH:**

AAMA 2603 Pigmented Organic Coatings  
(2.0 to 3.0 mils Film Thickness)  
One-Year Limited Warranty

2. **ARCHKOTE 6000™ POWDER COAT PAINT FINISH:**

AAMA 2604 High Performance Organic Coatings  
(2.0 to 3.0 mils Film Thickness)  
Six-Year Limited Warranty

ARCHKOTE 1000™ & 6000™ Stock Color Options:

- |                           |                     |
|---------------------------|---------------------|
| ___ # 9021 White          | ___ # 7001 Gray     |
| ___ # 1042 Colonial White | ___ # 3003 Red      |
| ___ # 1055 Sandstone      | ___ # 3004 Burgundy |
| ___ # 5018 Aqua           | ___ # 5003 Blue     |
| ___ # 5030 Brazil Green   | ___ # 9000 Black    |
| ___ # 6028 Florida Green  | ___ # 8033 Bronze   |

Optional Color: [specify] \_\_\_\_\_

D. Factory Powder Coat Paint Finish:

1. **ARCHKOTE 10K™ POWDER COAT PAINT FINISH:**

AAMA 2605 Superior Performing Organic Coatings  
(2.0 to 3.0 mils Film Thickness)  
Ten-Year Limited Warranty

Color shall be RAL# \_\_\_\_\_

[Specify color number from Arch Aluminum & Glass Co., Inc. color selection chart or specify color and name to be matched]

Color shall match: \_\_\_\_\_

E. Factory Fluoropolymer Coating Paint Finish:

1. **70% PVDF PAINT FINISH:**

AAMA 2605 Superior Performing Organic Coatings

Manufacturer: \_\_\_\_\_

Color: \_\_\_\_\_

Warranty: \_\_\_\_\_

F. Other:

AAMA: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Color: \_\_\_\_\_

Warranty: \_\_\_\_\_

**2.07 Quality Control**

A. Single Source Quality: Glazed Aluminum Curtain Wall and Glass System herein specified, including Related Products heretofore specified in "PART I – GENERAL 1.01, Summary B., Related Sections" shall be provided from a single source manufacturer.

B. Fabrication Quality: Glazed Aluminum Curtain Wall shall be fabricated according to manufacturer's specified tolerances.

**PART 3 – EXECUTION**

**3.01 Examination**

A. Verification of Site Conditions: Do not proceed with installation until site conditions, including substrate conditions which have been specified and installed under other "Sections", are acceptable for product installation according to Division 01 40 00 and manufacturer's instructions. Verify openings are correctly sized to receive Resistor Impact Wall PBS-383™ – Small Missile Curtain Wall and Glass System and that sill conditions are level as specified.

1. Field Measurements: Prior to fabrication or installation preparation, verify actual openings with field measurements and record same on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

**3.02 Installation**

A. Approved Drawings: Resistor Impact Wall PBS-383™ Curtain Wall and Glass System shall be installed in strict compliance with the project specific drawings and as approved by the Miami-Dade County Product Control Division.

B. The installation of this approved product **requires** a hurricane protection system (shutters) for INSTALLATIONS UP TO THIRTY (30) FEET OF GRADE when installed in High Velocity Hurricane Zones of the Florida Building Code.

C. The installation of this approved product **does not require** a hurricane protection system (shutters) for INSTALLATIONS ABOVE THIRTY (30) FEET OF GRADE when installed in High Velocity Hurricane Zones of the Florida Building Code.

D. Labeling: Each unit shall bear a permanent label with the manufacturers name or logo, city, state and following statement: "Miami-Dade County Product Control Approved".

E. General: Install Resistor Impact Wall PBS-383™ – Small Missile Curtain Wall and Glass System products in accordance with Division 01 73 00 and following the manufacturer's installation instructions in conjunction with the AAMA Installation of Aluminum Curtain Walls Manual and the GANA Glazing Manual.

F. Related Products:

1. Sealants: Refer to Section 07 92 00 Joint Sealants (Perimeter Sealants)
2. Glass and Glazing: Refer to Division 08 88 00 Special Function Glazing, Section 08 88 19 Hurricane Resistant Glazing
  - a. Reference: ANSI Z97.1, CPSC 16 CFR 1201, and GANA Glazing Manual

**3.03 Cleaning and Protection**

A. Cleaning:

1. Refer to and comply with Section 01 74 00, Cleaning and Waste Management for:
  - a. Progress Cleaning,
  - b. Site Maintenance,
  - c. Construction Waste Management and Disposal, and
  - d. Final Cleaning
2. Clean installed Resistor Impact Series PBS-383™ – Small Missile Curtain Wall and Glass System products according to the guidelines of AAMA Publications # 609 and # 610-2, "Cleaning and Maintenance Guide for Architecturally Finished Aluminum" (combined documents).
3. Repair or replace any damaged components.

B. Protection:

1. Refer to and comply with Section 01 76 00, Protecting Installed Construction.
2. All materials shall be protected against damage and from contact with water, mortar, plaster, paint, alkaline, and all contaminates.

## NOTICES:

### \*DISCLAIMER

1. These "Guide Specifications" are provided solely as an aid in the preparation of specifications for the specific products herein described. While compiled in the style of a three part format, this information is not intended to be used as a literal project specification. Neither is it intended to be inclusive of any particular nor all aspects of a complete project or product specification regarding the products' performance or the itemized procedures required by a qualified construction Specifier. This information must be used in conjunction and coordination with the procedural requirements of a qualified Specifier and the exacting requirements of a specific construction project.

2. Changing technology within the architectural products industry demands that the company reserve the right to revise, discontinue, or change any product line or specification without prior written notice.

## U. S. GREEN BUILDING COUNCIL



Arch Aluminum & Glass Co., Inc. is a member in good standing with the U.S. Green Building Council and active participant in the LEED™ Rating System.

### Architectural Resources:

1. U. S. Green Building Council:  
[www.usgbc.org](http://www.usgbc.org)
2. Arch Aluminum & Glass Co., Inc., Green Compliance:  
[www.archgreen.com](http://www.archgreen.com)
3. Miami – Dade County Building Code Compliance Office:  
[www.miamidade.gov/buildingcode/](http://www.miamidade.gov/buildingcode/)
4. Arch Aluminum & Glass Co., Inc., Hurricane Code Info:  
[www.hurricanecodes.com](http://www.hurricanecodes.com)
5. Arch Aluminum & Glass Co., Inc., General Website:  
[www.archaluminum.net](http://www.archaluminum.net)