

# ARCH<sup>®</sup>

## RESISTOR IMPACT SERIES

### IMPACT WALL 3000/L3000

### STOREFRONT FRAMING & GLASS SYSTEMS

## LARGE and SMALL MISSILE

APPROVED



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

#### Section 08 43 13 Aluminum-Framed Storefronts (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 & Glass Co., Inc. Resistor Impact Series Hurricane-Resistant Aluminum-Framed Storefront Aluminum Wall System

1. Type of Arch Aluminum-Framed Storefronts includes:
  - a. Resistor Impact Series  
**Impact Wall 3000/L3000 – Large and Small Missile**  
1¼" x 4½" Center Glazed Shear Block Framing System
  - b. 9/16" Laminated Impact Wall Glass

Miami-Dade County, Florida Notice of Acceptance is: **05-0906.05**

Florida State Product Approval is **FL6297.1**

This "SYSTEM" 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

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 44 13 Glazed Aluminum Curtain Walls
5. 08 80 00 Glazing

#### 1.02 References (Industry Standards)

A. American Society for Testing and Materials (ASTM)

1. ASTM E 283 Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Wall, and Doors
2. ASTM E 330 Test Method for Structural Performance of Exterior Windows, Curtain Wall, and Doors by Uniform Static Air Pressure Difference
3. ASTM E 331/E 547 Water Penetration of Exterior Window, Curtain Walls and Doors by Uniform (E331)/ Cyclic (E547) Static Air Pressure Difference.
4. ASTM E 1300 Standard Practice for Determining Load Resistance of Glass in Buildings.
5. ASTM E 1886 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Differential Pressure.
6. ASTM E 1996 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricane
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) High-Velocity Hurricane Zone

1. TAS 202, Criteria for Testing Uniform Static Air Pressure (Structural Only)
2. TAS 201, Criteria for Testing Large Missile Impact
3. TAS 203, Criteria for Testing Cyclic Wind Pressure

E. American Architectural Manufacturers Association (AAMA)

1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum
2. AAMA 2603 Voluntary Specification for Performance Requirements and Test procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
3. AAMA 2604 Voluntary Specification for Performance Requirements and Test procedures for High-Performance Organic Coatings on Aluminum Extrusions and Panels
4. 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. Performance Requirements:

1. When tested in accordance with ASTM E 283, air infiltration shall not exceed .06 CFM (allowed) per square foot of fixed area.
2. When tested in accordance with ASTM E 330:
  - a. Uniform Design Load; permanent deformation shall not exceed allowed.
  - b. Uniform Structural Load; permanent deformation shall not exceed allowed.
  - c. Project Wind Load Design Pressures shall be based on: \_\_\_\_\_ Building Code; \_\_\_\_\_ Edition and specified framing system, assemblies, anchors and anchoring methods shall withstand wind load design pressures of \_\_\_\_\_ PSF inward and \_\_\_\_\_ PSF outward.
3. When tested in accordance with ASTM E 331/E 547, no uncontrolled water when tested at test pressure differential of 10 psf (479 Pa)
4. When tested in accordance with Florida Building Code High-Velocity Hurricane Zones TAS protocols, aluminum entrances and walls shall be designed, certified, and labeled to be in compliance with the standards of "Large Missile and Small Missile Impact".

### 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.

### 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 Limited Product Warranty: Submit, for Owner's acceptance, manufacturer's "Limited" Product Warranty for Resistor Impact Series Systems as follows:

1. The Resistor Impact Series, Impact Wall 3000/L3000 – Large and Small Missile Aluminum Storefront Framing and Glass System shall be guaranteed by Limited Warranty against defects in materials and/or workmanship as defined by manufacturer's published Limited Warranty for a period of two (2) years from date of shipment.
2. The 9/16" Laminated Impact Wall Glass shall be guaranteed by Limited Warranty against defects in materials and/or workmanship as defined by manufacturer's published Limited Warranty for a period of five (5) years.

## 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. Product(s)

1. Hurricane-Resistant Storefront System:  
**Resistor Impact Series, Impact Wall 3000/L3000 Storefront Framing & Glass System – Large and Small Missile**

#### 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 – Framed Storefronts

1. Framing sections shall conform to the Material Standards of ASTM B 221; 6063
2. The framing profile dimensions will be:  
Vertical & Horizontal Mullions: 1¼" x 4½"
3. Thickness of major portions of framing mullions shall be:
  - a. Side Walls 0.115"
  - b. End Walls 0.250"
  - c. Glazing Fins 0.125"
  - d. Glazing Stops 0.063"

#### B. Glazing Components:

1. Gaskets shall be either extruded EPDM or thermoplastic elastomer.
2. Sealing Tape shall be Norton V-2100.

3. Sealant shall be Dow-Corning® 995 Structural Silicone

C. Glazing:

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

1. \_\_\_ Glass shall be 9/16" (nominal) Heat-strengthened Laminated Glass as manufactured by Arch Aluminum & Glass Co., Inc. consisting of:

One Lite of 1/4" Heat-strengthened glass x  
One .090" Saflex® Keepsafe (PVB) inter-layer by Solutia® x  
One Lite of 1/4" Heat-strengthened glass

– OR –

2. \_\_\_ Glass shall be 9/16" (nominal) Heat-strengthened Laminated Glass as manufactured by Arch Aluminum & Glass Co., Inc. consisting of:

One Lite of 1/4" Heat-strengthened glass x  
One .090" Sentry Glass Plus® (PVB) inter-layer by Dupont x  
One Lite of 1/4" Heat-strengthened glass

– OR –

3. \_\_\_ Glass shall be 9/16" (nominal) Heat-strengthened Laminated Glass as manufactured by Arch Aluminum & Glass Co., Inc. consisting of:

One Lite of 1/4" Heat-strengthened glass x  
One .100" Saflex® HP (PVB) inter-layer by Solutia® x  
One Lite of 1/4" Heat-strengthened glass

a. **Laminated Glass Composition:**

1. **OUTBOARD PANE:** 1/4" Thickness, Heat-strengthened conforming to ASTM C 1048 and fabricated from flat glass products defined as:

- 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)

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

- 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)

2. **INTERLAYER:**

- A. \_\_\_ Saflex® Keepsafe, 0.090" Plastic PVB:
- B. \_\_\_ Dupont Sentry Glass Plus®, 0.090" Plastic PVB:
- C. \_\_\_ Saflex® HP, 0.100" Plastic PVB:
  - a. \_\_\_ Clear
  - b. \_\_\_ Tint color: \_\_\_\_\_
  - c. \_\_\_ Transparency:
    - 1. \_\_\_ Clear
    - 2. \_\_\_ Other: \_\_\_\_\_

3. **INBOARD PANE:** 1/4" Thickness, Heat-strengthened conforming to ASTM C 1048 and fabricated from flat glass products defined as:

- 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)

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

- 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/L3000:

[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: 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.

**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 3000/L3000 – Large and Small Missile Storefront 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 using concealed fasteners to greatest extent possible.
- 2. Framing corner joints to be sealed with Dow-Corning® 999 sealant.
- 3. 9/16" Laminated glass to be set utilizing Norton® V-2100 tape and Dow-Corning® 995 Structural Silicone.
- 4. Glazing stops shall consist of square horizontal and vertical extruded aluminum hook type with extruded EPDM gasket.

**B. Limitations:**

This provision applies only to Buildings and Structures within the High-Velocity Hurricane Zone. Product approval applies to applications only as illustrated in approved "Product Approval Drawings"

- a. Refer to current FBC Product Approval/Miami-Dade Notice of Acceptance for: Approved sizes and configurations, Structural Loads, Design Pressures, and fastener types and locations based on substrate types, and applicable installation locations.
- b. This system may be used in conjunction with similarly approved Entrance Doors.

**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: Resistor Impact Wall 3000/L3000 – Large and Small Missile Storefront Framing & Glass System with Hurricane Resistant Glazing herein specified shall be provided from a single source.

B. Fabrication Quality: Resistor Impact Wall 3000/L3000 – Large Missile Storefront Framing & Glass System 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 3000/L3000 – Large Missile Storefront Framing & Glass System and that sill conditions are level and/or sloped away from openings 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 3000/L3000 – Large Missile Storefront Framing & Glass System must be installed in strict compliance with the project specific drawings and its product approvals.

B. The installation of this approved product **does not require** a hurricane protection system (shutters)

C. Labeling: Each unit shall bear a permanent label with the manufacturers name or logo, city, state and following statement: "High-Velocity Hurricane Zone Product Control Approved".

D. General: Resistor Impact Wall 3000/L3000 – Large Missile Storefront Framing & Glass System shall be installed in accordance with Division 01 73 00, the AAMA Storefront and Entrance Guide Specifications Manual, GANA Glazing Manual, GANA Sealant Manual, GANA - Laminators Glass Design Guide for glazing installation methods, and the manufacturer's installation instructions.

**E. 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
  - d. Final Cleaning
2. Clean installed Resistor Impact Wall 3000/L3000 – Large Missile Storefront Framing & 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 contaminants.

5. Arch Aluminum & Glass Co., Inc., General Website:  
[www.archaluminum.net](http://www.archaluminum.net)

## 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)