SECTION 08 44 13 - Glazed Aluminum Curtain Walls

GLAZED ALUMINUM CURTAIN WALL SYSTEM

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\*\* NOTE TO SPECIFIER \*\* Trulite Glass & Aluminum Solutions; architectural glass and aluminum framing.

This section is based on the products of Trulite Glass & Aluminum Solutions, which is located at:
403 Westpark Ct. Suite 201
Peachtree City, GA 30269
Toll Free Tel: 800-432-8132
Tel: 678-593-9200
Email: info@trulite.com
Web: [www.trulite.com](http://www.trulite.com)

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TRULITE GLASS & ALUMINUM SOLUTIONS is one of North America's largest architectural glass and aluminum fabricators and distributors. With its unmatched product line, Trulite has created a Total System Approach to satisfy virtually any architectural glazing requirement.

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1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Curtain wall systems of the following types:
			1. Thermally Improved curtain wall system for outside glazed pressure bar system for captured and vertically "butt-glazed" 1 inch (25 mm) insulating glass infill. (Series SW700)
			2. Thermally improved curtain wall system of outside glazed for captured and vertically "butt-glazed" 1-5/16 inches (33 mm) laminated insulating glass for large missile impact-resistance. (Resistor® Series SW732)
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 07 91 26 - Joint Fillers.
		2. Section 08 41 23 - Steel-Framed Entrances and Storefronts.
		3. Section 08 43 26 - All-Glass Storefronts.
		4. Section 08 43 29 - Sliding Storefronts.
		5. Section 08 43 29 - Sliding Storefronts.
		6. Section 08 51 13 - Aluminum Windows.
		7. Section 08 70 00 - Hardware.
		8. Section 08 81 00 - Glass Glazing.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Architectural Manufacturers Association (AAMA):
			1. AAMA 501 - Method of test for exterior Walls.
			2. AAMA 503 - Voluntary Specifications for field testing of Storefront, Curtain Walls and Slope Glazing Systems
			3. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
			4. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
			5. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
		2. ASTM International (ASTM):
			1. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
			2. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
			3. ASTM B 368 - Standard Method for Copper-Accelerated Acetic Acid-Salt Spray (Fog) Testing (CASS Test).
			4. ASTM C 236 - Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box.
			5. ASTM C 864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
			6. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
			7. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
			8. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
			9. ASTM E 783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
			10. ASTM E 1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.
			11. ASTM E 1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
			12. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
		3. South Florida Building Code Protocol TAS PA 201, PA 202 and PA 203.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. 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. Installation methods.
		3. Shop Drawings: Drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors and textures.
		4. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
		2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
		3. Project Record Documents: Submit project record documents for installed materials in accordance with Division 1 sections.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.
		2. 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 product manufacturer.
		3. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. 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. DELIVERY, STORAGE, AND HANDLING
		1. Ordering: Comply with manufacturer's ordering instructions and lead- time requirements to avoid construction delays.
		2. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
		3. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle entrance doors and components to avoid damage. Protect entrance doors against damage from elements, construction activities, and other hazards before, during and after entrance installation.
	2. PROJECT CONDITIONS
		1. 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.
	3. WARRANTY
		1. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's warranty for entrance system as follows:
			1. Warranty Period: Two years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by Trulite Glass & Aluminum Solutions.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Trulite Glass & Aluminum Solutions, which is located at: 403 Westpark Ct. Suite 201; Peachtree City, GA 30269; Toll Free Tel: 800-432-8132; Tel: 678-593-9200; Email: [request info (info@trulite.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Trulite+Glass+%26+Aluminum+Solutions&coid=47230&rep=&fax=&message=RE:%20Spec%20Question%20(08920vit):%20%20&mf=); Web: [www.trulite.com](http://www.trulite.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. CURTAINWALL SYSTEM (Non-Impact)
		1. Design Requirements:
			1. Source Quality: Provide aluminum curtain walls specified herein from a single source.
			2. Building Enclosure System: When aluminum curtain wall are part of a building enclosure system, including entrances, entrance hardware, windows, storefront framing and related products, provide building enclosure system products from a single source manufacturer.
			3. Material Standard: Extruded Aluminum, ASTM B 221, 6063-T6 alloy and temper.
			4. Member Wall Thickness: Each framing member shall have a wall thickness sufficient to meet the specified structural requirements.
			5. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of curtain wall members are nominal and in compliance with AA Aluminum Standards and Data.
			6. Fasteners: Where exposed, shall be Stainless Steel.
			7. Gaskets: Glazing gaskets shall comply with ASTM C 864 and be extruded of a silicone compatible EPDM rubber that provides for silicone adhesion.
			8. Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
			9. Thermal Barrier: Thermal separator shall be extruded of a silicone compatible elastomeric that provides for silicone adhesion.
		2. Performance Requirements:
			1. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/sf at a static air pressure differential of 6.24 PSF.
			2. Water Resistance, Static: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a static air pressure differential of 20 PSF as defined in AAMA 501. Uniform Load:
			3. Structural: A static air design load of 60 PSF shall be applied in the positive and negative direction in accordance with ASTM E 330.There shall be no deflection in excess of L/175 for spans up to 13'-6" or L/240 + 1/4" for spans greater than 13'-6, but less than 40' of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
		3. System Description: 2-1/2 inches by 7 inches (64 mm by 178 mm) curtain wall framing of outside glazed pressure bar system captured for 1 inch (25 mm) glazing infill. Includes perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of curtain wall framing.
			1. Product: SW700 Aluminum Curtain Wall System as manufactured by Trulite Glass & Aluminum Solutions.
			2. Glass Type: 1 inch (25 mm) insulated glass of construction indicated or scheduled.

\*\* NOTE TO SPECIFIER \*\* Delete If not required.

* + - 1. Provide vertical butt glazed assembly as indicated or scheduled.
		1. Fabrication:
			1. Fabrication Tolerances: Fabricate aluminum framing in accordance with framing manufacturer's prescribed tolerances.
			2. Fabricate components per manufacturer's installation instructions and with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
			3. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
			4. Prepare components to receive anchor devices. Fabricate anchors.
			5. Arrange fasteners and attachments to conceal from view.

\*\* NOTE TO SPECIFIER \*\* Select below finish and color from Trulite Glass & Aluminum Solutions' standard colors. Powder coatings are an EPA recommended finishing method for architectural aluminum and further contributes towards the "green building initiative" of the U.S. Government. Custom colors are available upon request from Trulite Glass & Aluminum Solutions Architectural Products. Other polyester powder coatings conforming to AAMA 2604 are available. Consult with your Trulite Glass & Aluminum Solutions representative for other surface treatments and finishes.

* + 1. Shop Finishing:
			1. Color Anodizing Conforming to AA-M12C22A44, AAMA 611, Color Anodic Coating (Color: # 80 Dark Bronze). (Standard)
			2. Clear Anodizing Coating Conforming to AA-M12C22A31, AAMA 611, Clear Anodic Coating (Clear #04) (Standard)

\*\* NOTE TO SPECIFIER \*\* Insert information required.

* + - 1. AAMA 2605, Fluoropolymer Powder Coating (Color: \_\_\_\_\_\_\_\_\_\_).
			2. AAMA 2604, Fluoropolymer Powder Coating. (Color: \_\_\_\_\_\_\_\_\_\_).
			3. Other: Manufacturer \_\_\_\_\_\_\_\_\_\_\_\_ Type \_\_\_\_\_\_\_\_\_\_\_\_ (Color \_\_\_\_\_\_\_\_\_\_).
		1. Sealants: Refer to Section 07 91 26 - Joint Fillers.
	1. IMPACT RESISTANT CURTAINWALL SYSTEM
		1. Design Requirements:
			1. Source Quality: Provide aluminum curtain walls specified herein from a single source.
			2. Building Enclosure System: When aluminum curtain wall are part of a building enclosure system, including entrances, entrance hardware, windows, storefront framing and related products, provide building enclosure system products from a single source manufacturer.
			3. Material Standard: ASTM B 221, 6063-T6 alloy and temper.
			4. Member Wall Thickness: Each framing member shall provide structural strength to meet the specified performance requirements.
			5. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of curtain wall members are nominal and in compliance with AA Aluminum Standards and Data.
			6. Fasteners: Shall be corrosive resistant.
			7. Gaskets: Exterior Glazing gaskets shall be extruded EPDM rubber. Interior Spacer shall be compatible with Silicone Sealant
			8. Perimeter Anchors: Anchors shall be identical to the types used for product certification testing for wood, concrete or steel substrates.
		2. Performance Requirements:

\*\* NOTE TO SPECIFIER \*\* Insert information required.

* + - 1. Wind loads: Provide framing system; include anchorage, capable of withstanding wind load design pressures of (\_\_\_\_) P.S.F. inward and (\_\_\_\_) P.S.F. outward. The design pressures are based on the (\_\_\_\_) Building Code; (\_\_\_\_) Edition.
			2. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.03 cfm/sf at static air pressure differential of 6.24 P.S.F.
			3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 15 P.S.F. as defined in AAMA 501.
			4. Uniform Load: A static air design load of +70/-80 P.S.F. with steel reinforcing maximum 60 inches spacing by 126 inches span (1524 mm by 3200 mm) shall be applied in the positive and negative direction in accordance with DCBCCO Protocol PA 202 and ASTM E 330. There shall be no deflection in excess of 1/180 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.4% of their clear spans shall occur.
			5. Impact Resistance: Large Missile, tested in accordance with DCBCCO Protocols PA 201, PA 203, SBCCI SSTD-12 and ASTM E 1886.
			6. Framing System shall provide direct structural attachment to substrate through perimeter framing sections eliminating blind seals or strap anchors.

\*\* NOTE TO SPECIFIER \*\* Delete If not required.

* + 1. System Description: 2-1/2 inches by 7-5/16 inches (64 mm by 186 mm); thermal improved; front set glazed for 1- 5/16 inches (33 mm) laminated insulating glass for large missile impact-resistant glazing; interior structural silicone glazed Wet Glazed or Dry Glazed as scheduled or indicated; screw spline fabrication.
			1. Product: Aluminum Framing System Resistor® Series SW732 Aluminum Curtain Wall as manufactured by Trulite Glass & Aluminum Solutions.
			2. Glass Type A: 1-5/16 inches (33 mm) Insulated Laminated - 1/4 inch (6 mm) Tempered -1/2 inch 13 mm) Air Space - 1/4 inch (6 mm) Heat Strengthened- 0.090 DuPont SGP (NOA# 03- 0514.15) 1/4 inch (6 mm) Heat Strengthened.

\*\* NOTE TO SPECIFIER \*\* Delete If not required.

* + - 1. Provide vertical butt glazed assembly as indicated or scheduled.
		1. Fabrication
			1. Fabrication Tolerances: Fabricate aluminum framing in accordance with framing manufacturer's prescribed tolerances.
			2. Fabricate components per manufacturer's installation instructions and with 1/2 inch (13 mm) maximum shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
			3. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
			4. Strap Anchors are not allowed for use with Hurricane Impact-Resistant Systems.
			5. Arrange fasteners and attachments to conceal from view
			6. Structural perimeter fasteners shall be located per manufacturer's anchor charts bearing the seal of registered Professional Engineer.

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* + 1. Shop Finishing:
			1. Color Anodizing Conforming to AA-M12C22A44, AAMA 611, Color Anodic Coating (Color: # 80 Dark Bronze). (Standard)
			2. Clear Anodizing Coating Conforming to AA-M12C22A31, AAMA 611, Clear Anodic Coating (Clear #04) (Standard)

\*\* NOTE TO SPECIFIER \*\* Insert information required.

* + - 1. AAMA 2605, Fluoropolymer Powder Coating (Color: \_\_\_\_\_\_\_\_\_\_).
			2. AAMA 2604, Fluoropolymer Powder Coating. (Color: \_\_\_\_\_\_\_\_\_\_).
			3. Other: Manufacturer \_\_\_\_\_\_\_\_\_\_\_\_ Type \_\_\_\_\_\_\_\_\_\_\_\_ (Color \_\_\_\_\_\_\_\_\_\_).
		1. Sealants: Refer to Section 07 91 26 - Joint Fillers. Structural silicone sealant to be Dow Corning 995.
1. EXECUTION
	1. EXAMINATION
		1. Site Verification of Conditions: Verify substrate conditions (which are specified to be installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive entrance system and sill is level in accordance with manufacturer's acceptable tolerances.
			1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.
		2. Do not begin installation until substrates have been properly prepared.
		3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Curtainwall Framing:
			1. Install curtain wall systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.
			2. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
			3. Glazing: Glass shall be outside glazed and held in place with extruded aluminum pressure bars anchored to the mullion using stainless steel fasteners spaced no greater than 9 inches (229 mm) on center.
			4. Water Drainage: Each light of glass shall be compartmentalized by using end dams at horizontal/vertical joint intersections and silicone sealant to divert water to the horizontal weep locations. Weep holes shall be located in the horizontal pressure bars and covers to divert water to the exterior of the building.
			5. Work of this section specified in other sections:
				1. Sealants (Perimeter): Refer to Section 07 91 26 - Joint Fillers Sealants.
				2. Glass: Refer to Section 08 81 00 - Glass Glazing Glass and Glazing. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Impact Resistant Curtainwall Framing:
			1. Install framing system in accordance with manufacturer's instructions and AAMA curtain wall and entrance guide specifications manual.
			2. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
			3. Weather-tight Construction: Install curtain wall system and other members in accordance with manufacturer's installation instructions to ensure weather-tight construction. Coordinate installation with wall flashings and other components of construction.
			4. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
			5. Provide alignment attachments and shims to permanently fasten system to building structure.
			6. Align assembly plumb and level, free of warp and twist. Maintain assembly dimensional tolerances aligning with adjacent work.
			7. Work of this section specified in other sections:
				1. Sealants (Perimeter): Refer to Section 07 91 26 - Joint Fillers Sealants.
				2. Glass: Refer to Section 08 81 00 - Glass Glazing Glass and Glazing. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.
	1. FIELD QUALITY CONTROL

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Field Tests: Architect shall select curtain wall units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
			1. Testing: Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Division 1 Testing Section for payment of testing and testing requirements.
				1. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/sf, whichever is greater.
				2. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 8 PSF.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.
	1. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION