

This specification utilizes the Construction Specifications Institute’s (CSI) 3-Part formatting. The specification is a manufacturer-specific product specification to be used by design professionals as a guide specification. This specification specifies the SLIMPACT® Frameless Impact Window Wall System by Faour Glass Technologies. Edit and revise Section text, Section number, and Title below to suit project requirements. Contact Faour Glass Technologies for specific custom conditions or if doors are to be incorporated into system.

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NOTICE: The guide specification on the following pages is designed to assist architects and specification writers. It is provided as a guideline only. Faour Glass Technologies does not assume any responsibility for the suitability or applicability of this guide specification to any specific building project.

**Guide Specification in CSI 3-Part Format**

**SECTION 08 46 00**

**Window Wall Assemblies**

**PART 1 GENERAL**

**1.1 SUMMARY**

 A. Section Includes: Frameless Window Wall System:

 1. Slimpact® Frameless Impact Window Wall

 B. Related Products and Sections:

 1. Sealants: Dow Corning® 995 and 795 Structural Silicone Sealants.

 2. Glass and Glazing: Refer to Division 8 Glass and Glazing Section for glass and glazing requirements.

 3. Curtain Wall: Section 08 43 00 Curtain Wall and Glazed Assemblies.

**1.2 DEFINITIONS**

 A. Deterioration of Laminated Glass: Defects developed from normal use attributed to the manufacturing process and not to

 glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's directions. Defects

 include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed

 by referenced laminated glass standard.

 B. Deterioration of Coated Glass: Defects developed from normal use attributed to the manufacturing process and not to

 causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's

 directions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.

**1.3 SYSTEM PERFORMANCE DESCRIPTION**

 A. Design impact window assemblies to meet wind-loading requirements of the Florida Building Code.

 1. All exterior window assemblies shall be compliant with Florida Building Code rule 9N-3 for statewide product

 approval and require a Florida Product approval number.

 B. Provide glazing systems that are capable of withstanding normal thermal movement, wind loading, and impact loading,

 without failure including loss or glass breakage attributable to the following: Defective manufacture, fabrication,

 installation; failure of sealants or gaskets to remain watertight and airtight; or deterioration of glazing materials.

 1. Design Wind Pressures: As indicated on Structural drawings.

 a. Wind Design Data: As indicated on Drawings.

 2. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7.

 a. Basic Wind Speed: [to be completed by architect/engineer based on project location]

 b. Importance Factor: [to be completed by architect/engineer based on project location]

 c. Exposure Category: [to be completed by architect/engineer based on project location]

 C. Glass Design:

 1. Tinted and heat‑absorbing glass thicknesses for each tint indicated are the same throughout Project.

 2. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass

 lites.

 D. Performance Requirements: Provide frameless window wall systems that comply with performance requirements

 indicated, as demonstrated by testing manufacturer's assemblies in accordance with South Florida Building Code Test

 Protocols TAS 201, TAS 202 and TAS 203.

 1. Wind Loads: Completed window wall system shall withstand wind pressure loads normal to wall plane indicated:

 a. Structural Performance:

 1) Positive Pressure:  psf. [to be completed by architect/engineer based on project requirements]

 2) Negative Pressure:  psf. [to be completed by architect/engineer based on project requirements]

 2. Thermal Movement: Provide for thermal movement caused by 180 degrees F. (82.2 degrees C.) surface

 temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements,

 damaging loads on fasteners, reduction of performance, or detrimental effects.

 3. Air Infiltration: Completed window wall systems shall have 0.10 CFM/FT² (1.10 m³/h·m²) maximum allowable

 infiltration when tested in accordance with ASTM E 283 and TAS202 at differential static pressure of 6.24 PSF (299
 Pa).

 4. Water Infiltration: No uncontrolled water, other than condensation, on indoor face of any component when tested in accordance with ASTM E 331 and TAS 202 at test pressure differential of 10.5 PSF (502.4 Pa). Water test to be
 performed immediately after design pressure test.

**1.4 SUBMITTALS**

 A. Product data for each glass product and glazing material indicated.

 B. Shop Drawings:

 1. Show elevations, details and methods of assembling sections, structural sealant joint, dimensions, shapes of materials,

 anchorage and fastening methods, and wall opening construction details.

 2. Shop drawings shall be signed and sealed by a licensed engineer registered in the State of Florida.

 3. Calculations for wind load design shall be stamped, sealed and signed by a Professional Engineer in the State of

 Florida verifying compliance with ASCE 7.

 C. Qualification Data: For installers.

 D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply

 with requirements.

1. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is

 certified by coating manufacturer.

 E. Product Test Reports: For each of the following types of glazing products:

 1. Florida Product Approval (Rule 9N-3 of the Florida Administrative Code).

 2. Provide documentation showing compliance with the following:

 a. ASTM E1886 Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm

 Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.

 b. ASTM E1996 Standard Test Method for Performance of Exterior Windows, Glazed Curtain Walls, Doors and

 Storm Shutters Impacted by Wind Borne Debris in Hurricanes.

 c. AAMA 501-05 Test Report, including ASTM E2283, ASTM E330, and ASTM E331.

 F. Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual.

 G. Sample Warranty

**1.5 QUALITY ASSURANCE**

 A. Single‑Source Responsibility for Glass: Obtain each type of glass from a single source for each product specified.

 B. Single‑Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and

 installation method indicates.

 C. Installer Qualifications: An experienced installer who has completed glazing and sealant similar in material, design, and

 extent to that indicated for this Project; whose work has resulted in glazing installations with a record of successful in-

 service performance; and who employs glazing installers for this Project.

1. Repairs to structurally glazed systems during the construction period are to be completed by a contractor meeting the

 same qualifications as the original installer.

 D. Provide labels showing glass manufacturer's identity, type of glass, thickness, and quality. Labels shall remain on glass

 until set and approved by the Architect.

 1. All clear tempered safety glass must have permanently affixed labels for verification.

 2. Provide label on each glass lite stating the outside and top of each lite for installation orientation.

 E. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below,

 unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in

 this Section or in referenced standards.

 1. GANA Publication: GANA Glazing Manual

 2. GANA Publication: GANA Laminated Glazing Reference Manual

 3. Applicable requirements for the FBC

 F. Safety Glazing: Comply with testing requirements in CPSC 16 CFR 1201, Category II.

 1. Provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or

 other certification agency acceptable to authorities having jurisdiction.

**1.6 DELIVERY, STORAGE, AND HANDLING**

 A. Deliver glass to Site in suitable containers that will protect glass from the weather and from breakage. Store material in a

 safe place where breakage can be reduced to a minimum. Deliver glazing compounds in unopened, labeled containers.

 B. Comply with manufacturer's directions to prevent damage to glass and glazing materials from handling, storing,

 condensation, temperature changes, direct exposure to sun, or other causes.

 C. Store and handle sealant materials in compliance with manufacturer's recommendations.

**1.7 PROJECT CONDITIONS / SITE CONDITIONS**

 A. Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by

 glazing materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes.

 1. Install liquid sealants when ambient and substrate temperatures are above 40 deg F.

 B. 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.

**1.8 WARRANTY**

 A. Warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

 B. Building envelope weathertight and watertight sealants shall be warranted by the sealant manufacturer for a period of five

 (5) years from the Date of Substantial Completion. Include coverage for installed sealants and accessories which fail to

 achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

**PART 2 PRODUCTS**

**2.1 MANUFACTURERS (Acceptable Manufacturers/Products**)

 A. Acceptable Window Manufacturers: Faour Glass Technologies

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 Tampa, Florida 33634

 Telephone: (800) 929-4691; Fax: (813) 886-64001

1. Frameless Window Wall System: Slimpact® Frameless Window Wall
	1. Slimpact ® Window Wall Florida Product Approval Number: FL25673

 B. Substitutions:

 1. Not permitted

**2.2 GLASS PRODUCTS**

 A. Heat--Treated Float Glass: ASTM C1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.

 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as

 installed, unless otherwise indicated.

 2. Provide: Kind HS (heat-strengthened) float glass in place of annealed float glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Performance Requirements.

 B. Laminated Glass: ASTM C1172 – Standard Specification for Laminated Architectural Flat Glass, thickness based on

 performance requirements and Florida Product Approval

1. Approved laminated glass interlayers:
	1. Kuraray (formerly DuPont) SentryGlass ionoplast interlayer
	2. Kuraray (formerly DuPont) Butacite interlayer
	3. Eastman (formerly Solutia) Saflex interlayer

**2.3 SEALANTS**

 A. All glazing, structural and weather sealants to be Dow Corning

 1. Colors of Exposed Glazing Sealants: Black unless noted otherwise.

**2.4 ALUMINUM**

 A. Aluminum Channels: ASTM B221, Alloy 6063-T4 – Standard Specification for Aluminum and Aluminum-Alloy

 Extruded Bards, Rods, Wire, Profiles, and Tubes

**2.5 MISCELLANEOUS MATERIALS**

 A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of

 manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of

 compatibility with surfaces contacted in installation.

 B. Unless otherwise indicated, provide Type 316 stainless-steel fasteners. Select fasteners for type, grade, and class

 required.

 C. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

 D. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85 plus or minus 5.

 E. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing

 sealant depth and otherwise produce optimum glazing sealant performance.

**2.6 FABRICATION OF GLASS**

 A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face

 clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and

 referenced glazing standard as required to comply with system performance requirements.

 B. Clean cut or flat grind, and polish all edges of structurally‑glazed monolithic lites in a manner that produces square edges

 with slight kerfs at junctions with indoor and outdoor faces.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

A. Examine glass framing for compliance with the following.

 1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.

 2. Minimum required face or edge clearances.

 B. Do not proceed until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that

 may interfere with bonding to substrates.

**3.3 FRAMING INSTALLATION**

A. Fastening to In‑Place Construction: Provide anchorage devices and fasteners necessary for securing framing to in‑place

 construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through‑bolts, lag bolts, wood

 screws, and other connectors as required to meet the Florida Product Approval document.

 B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal

 fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb,

 true, and free of rack; and measured from established lines and levels.

 C. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry,

 wood, or dissimilar metals with a heavy coat of barrier paint as recommended by manufacturer for the intended purpose.

**3.4 GLAZING, GENERAL**

 A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, industry standards, and other

 glazing materials, except where more stringent requirements are indicated, including those in referenced glazing

 publications.

 B. Protect glass from edge damage during handling and installation as follows:

 1. Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing.

 Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar.

 2. Remove damaged glass from Site and legally dispose of off-site. Damaged glass is glass with edge damage or other

 imperfections that, when installed, weaken glass and impair performance and appearance.

 C. Apply primers to joint surfaces where required for adhesion of sealants as required for substrates indicated.

 D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise

 required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

 E. Provide spacers for glass where indicated on final Shop Drawings.

 1. Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required

 face clearances.

 F. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

 G. Set glass lites with proper orientation as noted on attached label.

**3.5 SEALANT GLAZING (WET)**

 A. Install continuous spacers between glass lites and glazing stops to maintain glass face clearances and to prevent sealant

 from extruding into glass channel until sealants cure. Secure spacers in place and in position to control depth of installed

 sealant relative to edge clearance for optimum sealant performance.

 B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and

 channel surfaces.

 C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

 1. Clean excess sealant or compound from glass and framing members immediately after application, using solvents or

 cleaners recommended by manufacturers.

**3.6 CLEANING AND PROTECTION**

 A. Wash glass on both faces in each area of Project not more than 4 days prior to date scheduled for inspections that

 establish Date of Substantial Completion.

 1. Glass to be cleaned according to:

 a. GANA Glass Informational Bulletin GANA 01-0300 – Proper Procedure for Cleaning Architectural Glass Products

 b. GANA Glass Informational Bulletin GANA TD-02-0402 – Heat Treated Glass Surfaces are Different

 2. Do not use razor blades, scrapers or metal tools to clean glass.

**END OF SECTION 08 46 00**