SKYSHEER
Where Transparency Meets Sustainability

SECTION 08 44 13

GLAZED CURTAIN WALL SYSTEMS (FRAMELESS)

SkySheer Frameless Glass Curtain Wall
by Aestech Engineering

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Structural frameless glass curtain wall system with vacuum insulating glass (VIG) or conventional insulating glass units (IGUs):

1. Standard insulating and laminated glass.
2. Optional Vacuum Insulated Glass (VIG) assemblies.
3. Structural bonding components and concealed anchoring.
4. System accessories including fasteners, sealants, trims, and setting blocks.

1.2 RELATED SECTIONS

A. Section 08 81 00 – Glass Glazing
B. Section 07 92 00 – Joint Sealants
C. Section 08 44 23 – Structural Sealant Glazed Curtain Walls

1.3 REFERENCES

- ASTM C1036 – Flat Glass
- ASTM C1048 – Heat-Treated Flat Glass
- ASTM C1172 – Laminated Architectural Glass
- ASTM E1300 – Structural Performance of Glass
- ASTM E2188, E2189, E2190 – IGU Performance
- ANSI Z97.1 / 16 CFR 1201 – Safety Glazing
- ISO 19916-1 – Vacuum Insulated Glazing
- ASCE 7 – Structural Load Calculations
- NFRC 100 - Thermal Transmittance (U-Factor).

1.4 PERFORMANCE REQUIREMENTS

A. Design Glass and Anchorage System to withstand:

1. Wind Load: [Insert project-specific load, e.g., 50 psf] 58% greater than conventional double-pane IGUs
2. Seismic movement per IBC/ASCE 7
3. Temperature differential of up to 70°C without glass edge stress failure
4. VIG unit vacuum retention: 10 years minimum

B. Maximum Deflection (glass): L/175 or 1 inch, whichever is less

C. Thermal movement allowance: ±1/2" (12.7mm) per 100' (30.5m).

D. U-Values (center-of-glass):

- Non-VIG: Approx. 0.29 to 0.47
- VIG: Approx. 0.07 to 0.10

E. Air infiltration ASTM E283: ≤ 0.06 cfm/ft^2 @ 6.24 psf

F. Water penetration resistance: No leakage @ 12 psf

G. Acoustic Control:

- STC rating: 40+ with triple-pane configuration with VIG

1.5 SUBMITTALS

A. Product Data and Manufacturer's Literature

B. Engineering Calculations

C. Shop Drawings

D. Glass and Joint Sealant Samples

E. Testing Certifications

F. Warranty Documents

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5 years producing frameless structural systems

B. Installer Qualifications: Minimum 3 projects of similar scope

C. Mock-up: Required for projects exceeding 2,000 ft^2

D. Testing Agency: Accredited to ISO/IEC 17025

1.7 WARRANTY

A. System Warranty: 10 years against delamination, bonding failure

B. VIG Warranty (if applicable): 10 years against loss of vacuum integrity

C. Structural spacer delamination

PART 2 – PRODUCTS

2.1 MANUFACTURER/SUPPLIER

SkySheer powered by Aestech Engineering
Websites: www.skysheer.com | www.aestech.com
Headquarters: SkySheer, Canada

2.2 SYSTEM DESCRIPTION

A. Structural frameless glass curtain wall with concealed fasteners
B. High-strength structural adhesive connects glass to integrated stainless anchoring points
C. Panel edges polished and interlocked with silicone joints
D. Vacuum Insulated Glass optional for ultra-low thermal transmittance

2.3 MATERIALS

A. Glass Types:
1. Laminated, tempered, or fully tempered low-iron glass
2. Optional VIG units composed of double-pane fully tempered vacuum sealed glass with micropillars
3. Glass thickness: 6 mm to 16 mm per design

B. Sealants:
- Structural Silicone (DowSil 983 or equivalent)
- Perimeter Sealant: UV-resistant silicone

C. Anchors/Fasteners: Stainless steel, concealed
D. Setting Blocks: Non-staining, compatible elastomeric materials
F. Pultruded Fiberglass Spacers: dimensions 20x15mm or 15x12mm

2.4 FABRICATION

A. Panel fabrication per approved shop drawings
B. Cutouts, notching, and inserts precision-machined in factory
C. Vacuum IGU panels factory-sealed, edge treated
D. Perimeter bonding pre-installed with spacer and silicone edge-seal integrity

2.5 FINISHES

A. Glass Finishes:
- Clear, Low-Iron, Solar Control
- Optional coatings: Low-E, reflective

B. Sealant Color: To match designer specifications
C. Joint Lines: Continuous silicone joints

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify substrate alignment, backing, and bearing conditions
B. Ensure tolerances meet curtain wall system manufacturer's requirements

3.2 INSTALLATION

A. Install curtain wall system per SkySheer's guidelines
B. Seal all joints per ASTM C1193
C. Maintain structural integrity during anchoring and silicone curing
D. Protect adjacent surfaces from sealant and construction debris

3.3 FIELD QUALITY CONTROL

A. Perform field water and air infiltration tests per AAMA 501.2
B. Inspect sealant adhesion and glass edge conditions
C. Verify vacuum seals (VIG only) with laser or pressure gauge if required

3.4 CLEANING AND PROTECTION

A. Clean glass per manufacturer's instructions
B. Protect installed work from subsequent construction damage
C. Final inspection before handover

Technical Notes:

- All values are based on AESTECH's patented tubular IGU technology eliminating aluminum mullions.
- Thermal performance calculations assume continuous insulation at perimeter conditions.
- Consult with SkySheer/AESTECH Engineering for project-specific wind load analysis and custom configurations.

END OF SECTION 08 44 13