

## **Section 08 44 26.19 – GLAZED ASSEMBLIES**

*This general specification is to be used as a guide. It is broad in scope and is for reference only. JEB Invisiwall™ applications are individually unique and project specific. Contact JE Berkowitz, L.P. (Mike Nicklas, [mnicklas@jeberkowitz.com](mailto:mnicklas@jeberkowitz.com), 800-257-7827, x214) for assistance with specifications for project specific applications. All specifications are subject to change. Note: The specifications below are offered as desirable inclusions and are not intended to be complete. An appropriate, qualified design professional must verify the suitability of a specific product for use in a particular application as well as review the final specification. Words and sentences within [ ] reflect a choice to be made regarding the inclusion or exclusion of a particular item. Add, delete, or modify items as necessary.*

## **PART 1 - GENERAL**

### **1. SUMMARY**

- A. Section Includes: Design, structural engineering, custom fabrication and site erection for glass and connections of the structural glazing system including Point Supported Structural Glass, in accordance with the contract documents.
- B. The basis of design is the **JEB Invisiwall™ Glass Canopy (Point Supported) by JE Berkowitz, LP.**
- C. Related Sections:
  - 1. Section 03 30 00- Cast in Place Concrete- [Foundations and slabs] [concrete structural frame] to receive glazed assemblies Section 08 81 00
  - 2. Section 04 05 00 - Masonry Assemblies: Masonry Framing to support glass assemblies
  - 3. Section 05 12 00 – Structural Steel: Steel structural frames to support glass assemblies

### **1.02 REFERENCES**

*(Delete all reference standards that are not required and add any standards required by local or state standards. The Contracting Requirements or Division 1, Section 01420. References may establish the edition date of standards not otherwise indicated. Division 1 may include full names and addresses of the organization whose standards are referenced.)*

- A. American Society of Civil Engineers (ASCE) – ASCE 7 Minimum Design Loads for Buildings and Other Structures.
- B. American National Standards Institute (ANSI): ANSI Z97.1 - Safety Performance Specification And Methods of Test for Safety Glazing Material Used in Buildings
- C. United States
  - 1. ASTM A276 - Stainless and Heat Resisting Steel Bars and Shapes
  - 2. ASTM B 36/B 36M – Brass Plate, Sheet, Strip, and Rolled Bar
  - 3. ASTM C162 – Standard Terminology of Glass and Glass Products.
  - 4. ASTM C290 - Elastomeric Joint Sealants
  - 5. ASTM C509 - Elastomeric Cellular Preformed Gasket and Sealants
  - 6. ASTM C864 - Dense Elastomeric Compression Seal Gaskets, Setting Blocks and Spacers
  - 7. ASTM C1036 – Standard Specification for Flat Glass.
  - 8. ASTM C1048 – Standard Specification for Heat-Treated Glass – Kind HS, Kind FT Coated and Uncoated Glass.

9. ASTM C115 - Dense Elastomeric Silicone Rubber gaskets and Accessories
10. ASTM C1172 – Standard Specification for Laminated Architectural Flat Glass.
11. ASTM C 1281 - Preformed Tape Sealants for Glazing Applications
12. ASTM E330- Structural Performance of Exterior Windows, Curtainwalls and Doors by Uniform Static Air Pressure Difference
13. ASTM E331 - Water Penetration of Exterior Windows, Skylights, Doors and Curtainwalls By Uniform Static Air Pressure
14. ASTM E773 - Accelerated Weathering of Sealed Insulating Glass Units
15. ASTM E774 - Classification of the Durability of Sealed Insulating Glass Units
16. ASTM E1300 - Determining Load Resistance of Glass in Buildings
17. Insulating Glass Manufacturers Alliance (IGMA) – Glazing Guidelines.
18. EN 14179-1:2005– European Heat Soaking Standard. (*Optional*)
19. GANA Glazing Manual: Glass Association of North America.
20. GANA Sealant Manual: Glass Association of North America.
21. GANA Laminated Glass Design Guide: Glass Association of North America.
22. ISO 9001-2015 Certification.

### **1.03 GLAZED ASSEMBLY DESCRIPTION**

- A. Point Supported Glass Canopy to be custom designed, engineered, factory fabricated and site assembled and erected.
- B. Glazed Assembly Type: Glass [Horizontal] [Multi- angled] [Sloping] stabilized and attached to [Metal] with connector fittings.
- C. Dimensions: Glazed Assemblies shall be nominal dimensions shown on Drawings. Minor variations to accommodate manufacturer’s design and components are acceptable provided overall concept is maintained

### **1.04 PERFORMANCE REQUIREMENTS**

- A. General: Provide glazed assembly meeting or exceeding the following performance criteria.
  1. STRUCTURAL PROPERTIES:
    - a) Provide design and fabricate and for all glazed assembly work to with stand a;
      1. Design [Wind] Load \_\_\_\_\_ pounds per square foot
      2. Snow Load if applicable) \_\_\_\_\_ pounds per square foot.
      - 3 Seismic Loads: As required by IBC or prevailing code [As indicated on the drawings]
  - B. Building Frame Movements: Design, fabricate and install glazed assemblies to withstand building movements including loading deflections, shrinkage, creep and similar movements.
  - C. Design Modifications:
    1. Submit design modifications necessary to meet the performance requirements and field coordination.
    2. Variation in details or materials shall not adversely affect the appearance, durability, strength of components.

3. Maintain the general design concept without altering the size of the members, profiles and alignment.

## **1.05 SUBMITTALS**

- A. Submit in accordance with Section [01 33 00] [01330] - Submittal Procedures
  1. Product Data for all proposed components, materials, products and accessories.
    - a. Shop drawings: Submit shop drawings scaled elevations, plans and sections of the glazed assemblies. Full scale sections shall be prepared and submitted for the details of the assemblies that cannot be shown in the elevations or sections. Illustrate method of assembly, installation and glazing. Provide details for support framing, reinforcement, connections, joints, anchors. No work shall be fabricated until the shop drawings for that work have been approved by the Architect.
  2. Calculations: Show compliance with performance criteria and applicable loads with stamp of licensed Professional Engineer registered in the State of [ \_\_\_\_ ].
- B. Samples: Submit samples of the following before any work is fabricated:
  1. Glass: 12" x 12" for each glass type, showing exposed edge finish
- C. Structural Calculations: Submit, for information only, copies of structural calculations indicating complete compliance with the specified performance requirements. Calculations shall be prepared, signed, and sealed by a Professional Engineer registered in the state where the work is to be installed.

## **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: All glazed assembly drawings are based on JEB Invisiwall Point Support Wall drawings, detailing and specifications. [Fabricated glass for the glazed assemblies based on using JE Berkowitz's heat soaked tempered glass products].
- B. Award the fabrication of glazed assembly components to a single firm specializing in the fabrication of glazed assembly components in similar design and extent required for the project, with not less than ten projects of similar scope to the satisfaction of the Architect.
- C. Installer Qualifications: Subcontract the glazed assembly work to a firm which is specialized in the erection of all glazed assemblies and who has successfully produced work similar in design and extent required for the project in not less than five projects of similar scope to the satisfaction of the Architect, and whose work has resulted in construction with a record of successful in-house performance for a period of five years.

## **1.07 DELIVERY, STORAGE AND HANDLING**

- A. Packing of components shall be selected to protect the components from damage during shipping and handling
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer. Exercise particular care to avoid damage to the finishes.

## 1.08 PROJECT SITE CONDITIONS

- A. Field Measurement: When construction schedule permits, verify field measurements with drawing dimensions prior to fabrication of the glazed assemblies.

## 1.09 WARRANTY

- A. Submit a 1 (one) year warranty, beginning from date of substantial completion, and executed by the Contractor, manufacturer and glazed assembly installer agreeing to repair or replace components of the glazed assembly that develop defects in materials or workmanship within the specified warranty period. Defects include structural failures sealant failures deterioration of metals, metal finish failures.

## PART 2 - GENERAL

### 1. MANUFACTURERS

- A. Manufacture is used in the section to refer to a firm that fabricates glazed assemblies. Manufacture to be a single source responsibility.

**Basis of Design is JE Berkowitz Invisiwall Glass Canopy IVW-CPY-XXX (See website for product number)**

Acceptable manufacturers include:

1. JE Berkowitz, L.P. (Contact Mike Nicklas, [mnicklas@jeberkowitz.com](mailto:mnicklas@jeberkowitz.com), or 800-257-7827 x 214)
2. Requests to use design services and products must be submitted in accordance with Section 0163 Product Substitution Procedures

### 2.03 COMPONENTS

- A. GLASS: Provide glass tested for surface and edge compression per ASTM C 1048 and for impact Strength per 16 CFR 1201 for Category II materials

1. Thickness: [ 9/16" ] [13/16" ] [as required] Laminated glass required to suit the performance requirements.
2. Glass Type: [Clear] [ Low Iron ] [ \_\_\_\_\_ Tint ] [Acid Etch]
3. Interlayer: Trosifol Sentry Glas
4. Glass Strength: [Monolithic Fully Tempered]. [All glass shall be heat soaked in accordance by EN 14179-1:2005 standard by JE Berkowitz.]
5. Glass to be heat-treated by horizontal (roller hearth) process with inherent roller-wave distortion parallel to the bottom edge of the glass as installed when specified.
6. Exposed Edges: Flat edge (cut edge of glass is flat and surface edges are slightly arised with polished image
7. Butt Edges: Flat edge (cut edge of glass is flat and surface edges are slightly arised with polished finish.
8. **All glass shall be manufactured and fabricated in the United States of America.**

- B. FITTINGS:

1. Provide structurally engineered and independently tested fittings by an independent laboratory, for connecting glass panels and hardware together and attachment to the structure
2. Material: Stainless steel complying with ASTM A276, Type 316 with brushed satin finish.

3. Types: Configuration, number of points, size, and spacing shall be determined by manufacturer and scheduled on shop drawings to accommodate project design and meet performance criteria specified in Paragraph 1.4. Ensure that fitting- induced stresses do not exceed glass strength.
4. Providing fittings with [Countersunk] [Surface Disc] stainless steel bolts, nylon bushings, and resilient gaskets.

## C. ACCESSORIES

1. Provide glazing accessories, anchors, and fasteners of type recommended by manufacturer and as required for complete and functional installation
2. Anchorage devices: Clips, anchors, fasteners and shims required for secure installation as recommended by manufacturer.
3. Cleaners and primers: As recommended by manufacturer.
4. Setting Blocks: Neoprene or EPDM
5. Edge blocks: Elastomeric material of hardness required to limit lateral movement.
6. Gaskets: Molded or extruded elastomeric type of profile and hardness required to maintain weather tightness.
7. Glazing Tape: Preformed rubber butyl compound, non-staining, non-migrating in contact with non-porous surfaces.
8. Glazing sealant: Chemically curing type compatible with materials and conditions and capable of anticipated joint movement without failure
9. Structural Sealant: High performance, two component, non-sag, neutral cure, ultra violet resistant, silicone sealant designed for a structural glazing.

## 2.04 COORDINATION

- A. Coordinate provision of glazed assembly with casting concrete [footings] [floor slabs] [walls] [Structural framing] specified in Section 03 30 00- Cast in Concrete.
- B. Coordinate provision of glazed assembly with structural framing specified in Section 05 12 00.
- C. Field verify dimensions prior to fabrication.

## PART 3 - EXECUTIONS

### 3.01 EXAMINATION

- A. Examine the substrates, adjoining construction, and conditions under which the Work is to be installed. Do not proceed with the Work until unsatisfactory conditions have been corrected.
  1. Before beginning installation of the glazed assemblies examine all parts of existing building structural frame indicated to support the glazed assembly work. Notify Contractor in writing, of any dimensions, or conditions, found which will prevent the proper execution of the all glass entrance and sidelight work, including specified tolerances. Use Contractor's offset lines and bench marks as basis of measurements.

### 3.02 INSTALLATION

- A. General: Comply with manufacturer's written instructions for protecting, handling and installing all glazed assemblies. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints.
  
- B. Set components within the erection tolerances with uniform joints where shown. place components on aluminum or stainless steel shims and fasten to supporting substrates using bolts and similar fasteners.
- C. Do not erect components which are warped, deformed, defaced or otherwise damaged to impair strength. Remove and replace members damaged in the process of erection.
- D. Maintain uniform clearances between adjacent components.
- E. Install silicone glazing sealant to comply with requirements of Division 8 Section "Glazing," unless otherwise indicated.

### **3.04 CLEANING**

- A. Clean metal surfaces promptly after installation, exercising care to avoid damage to factory finished exposed surfaces.
- B. Wash glass on both surfaces not more than 4 days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer. Remove excess glazing and sealant compounds, dirt and other substances.

### **3.05 PROTECTION**

- A. Institute protective measurements required thought the remainder of construction period to ensure that glazed assembly work will be without damage or deterioration, at time of acceptance.

**END OF SECTION- 08 41 26**