

SECTION [08 44 30] [08980]

GLASS FLOOR ASSEMBLIES

******* Unique custom designed glass floor assemblies, canopies, skylights, facades, entrances, storefronts, curtain walls, and other structures can add distinction, exceptional beauty, and expansive visibility to a construction project. However, these glass structures require meticulous engineering, extensive knowledge of materials and codes, broad experience, quality materials, and expert craftsmanship. Each design will have unique parameters and requirements which must be accurately addressed in order to provide a safe, functional, durable, weather-resistant glass structure which can withstand wind and seismic loads and thermal expansion and contraction. It is critical that unique glass structures be both designed and fabricated by a single, knowledgeable entity assuming complete responsibility. Piece-meal assembly of products from numerous manufacturers and fabricators without a comprehensive design and engineered solution is not a method for achieving a functional, safe, glass structure.**

Innovative Structural Glass, Inc. can provide this essential sole source design and fabrication responsibility. They are a domestic company focused on the United States market. They provide glass luxury at affordable prices in a timely manner. Innovative Structural Glass, Inc. designs and fabricates a wide variety of glass structures including floor assemblies, canopies, skylights, facades, entrances, storefronts, glass fin systems, and tension truss structures.

This specification guide can be used to specify a custom designed and engineered structural glass floor assemble. In contrast to more typical descriptive specifications, this section is a performance type emphasizing the critical factor of design and engineering. It provides a convenient format that can be edited to reflect the unique glass structure envisioned by an architect and ensure that it is correctly engineered, carefully detailed, accurately fabricated, and properly installed.

This specification section is organized by placing information in three standard parts:

- | | |
|----------------------------------|--|
| <u>PART 1 - GENERAL</u> | Describes the design and performance criteria for the glass floor and other administrative and procedural requirements. |
| <u>PART 2 - PRODUCTS</u> | Describes materials, products, accessories, and fabrication methods to be used for the glass floor. |
| <u>PART 3 - EXECUTION</u> | Describes how the components will be assembled and installed at the construction site. |

Throughout this product guide specification, references are made to other specification sections that might be contained in the project manual. These references are presented as examples and coordination reminders. For each project, these references will need to be revised to reflect actual sections being used.

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The six-digit specification section numbers in this guide are based on classifications and numbers contained the 2004 Edition of MasterFormat published by the Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC). This is the industry standard for organizing construction specifications. Previous five-digit numbers from the 1995 Edition of MasterFormat have also been included in this guide and are listed in brackets following the 2004 Edition numbers.

Within the specification text, Imperial dimensions are presented first in brackets followed by System International Metric (SI) equivalents also in brackets. Depending on project requirements, either the Imperial or the SI metric equivalents will need to be deleted.

The specifier will need to edit this product specification for a specific project to reflect the options and applications being used. The guide section has been written so that much editing can be accomplished by deleting unnecessary requirements and options. Additional information describing the desired characteristics of the glass structure will need to be added by the specifier. Options are indicated by []. Notes to assist the specifier in selecting options and editing the specification guide are printed in bold and indicated with *****. For final editing, all brackets and notes will need to be deleted from the guide.

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Functional design, structural engineering, custom fabrication, and site erection of glass floor assembly for [__type of project or structure__].

******* List other specification sections dealing with work directly related to this section such as the following. *******

- B. Related sections:
1. Section [03 30 00] [03300] - Cast-in-Place Concrete: Concrete framing to support glass floor panels.
 2. Section [05 10 00] [05100] - Structural Metal Framing: [Steel] [Stainless steel] [Aluminum] framing to support glass floor panels.
 3. Section [06 11 00] [06110] - Wood Framing: Wood framing to support glass floor panels.

******* Glass for canopy may be specified in this section or in a separate section covering glass for all project glazing. However, supply and installation of glass must be part of this section to ensure sole source responsibility. Include the following paragraph if glass is specified in a separate section. *******

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4. Section [08 80 00] [08800] - Glazing: Glass floor panels to be supplied and installed as part of this Section.

1.2 REFERENCES

****** List by number and full title reference standards referred to in remainder of specification section. Delete non-applicable references. ******

- A. American National Standards Institute (ANSI): ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
- B. American Society of Civil Engineers (ASCE): ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. American Society for Testing and Materials (ASTM):
 1. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 2. ASTM A653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
 3. ASTM B221 - Aluminum-Alloy Extruded Bar, rod, Wire, Shape, and Tube.
 4. ASTM C864 - Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
 5. ASTM C920 - Elastomeric Joint Sealants.
 6. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid Applied Sealants with Accessories Used in Structural Glazing Systems.
 7. ASTM C1048 - Heat Treated Flat Glass, Kind HS, Kind FT, Coated and Uncoated.
 8. ASTM C1172 - Laminated Architectural Flat Glass.
 9. ASTM C1184 - Structural Silicone Sealant.
 10. ASTM C1193 - Standard Guide for Use of Joint Sealants.
 11. ASTM C1330 - Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
 12. ASTM E331 - Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

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13. ASTM E1300 - Determining Load Resistance of Glass in Buildings.
- D. Consumer Product Safety Commission (CPSC): CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- E. Glass Association of North America (GANA): GANA - Glazing Manual.
- F. International Code Council (ICC): ICC IBC - International Building Code.

1.3 GLASS FLOOR ASSEMBLY DESCRIPTION

- A. [Interior] [Exterior] structural glass floor assembly to be custom designed, engineered, detailed, factory fabricated, and site erected. Assembly shall consist of glass floor panels installed on floor framing with structural silicone sealant.

******* Unique glass floor structures can be created by Innovative Structural Glass, Inc. Contact them for available options and assistance in planning and specifying. Edit the following paragraph to reflect basic configuration of glass floor. Assembly can consist of a single glass panel installed in a floor opening or multiple glass panels supported by an open grid framing system of beams and joists. Support framing members can be concrete, steel, stainless steel, aluminum, wood, or even laminated glass joists. *******

- B. Basic configuration: [Single] [Multiple] structural glass panel[s] *** [installed in floor opening[s] *** [supported by open grid system of [concrete] [steel] [stainless steel] [aluminum] [wood] [laminated glass] [_____] beams and joists] *** [other configuration as determined in consultation with Innovative Structural Glass, Inc.] to provide architectural appearance shown on Drawings.
- C. Dimensions: Glass floor assembly shall be nominal dimensions shown on Drawings. Minor variations to accommodate manufacturer's design and components are acceptable provided overall concept is maintained.

******* Various shapes of glass floor panels can be used. *******

- D. Glass floor panels: [Circular] [Square] [Rectangular] [Triangular] [_____] shaped panels of sizes and layout indicated on Drawings.

1.4 DESIGN AND PERFORMANCE CRITERIA

******* Innovative Structural Glass, Inc. will provide structural engineering and design for secondary support system, connections, joints, and other elements of glass floor assembly. Design of the primary floor structure into which the glass floor assembly is installed will be the responsibility of the Architect. Edit this article to reflect project conditions and applicable codes. *******

- A. Design, size components, and install glass floor assembly in accordance with ASTM

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E1300 to withstand these loads without breakage, loss, failure of seals, product deterioration, and other defects.

1. Dead and live loads: Determined by ASCE 7 and calculated in accordance with applicable codes.
2. Seismic loads: System shall be designed and installed to comply with applicable seismic requirements for Project location and Seismic Zone [0] [1] [2A] [2B] [3] [4] as defined by of ICC/IBC.
3. Movement and deflection of structural support framing.
4. Thermal loads and movement:
 - a. Ambient temperature range: [[120] [_____] degrees F.] [[67] [_____] degrees C.]
 - b. Material surfaces range: [[180] [_____] degrees F.] [[100] [_____] degrees C.]

******* Include the following paragraph if an exterior glass floor assembly is being specified. *******

- B. Provide and install exterior gaskets, sealants, and other glazing accessories to resist water penetration. There shall be no penetration at [15] [_____] pounds/square foot] [[73] [_____] kilograms/square meter] test pressure and [[5] [_____] gallons/hour/square foot] [[203] [_____] liters/hour/square meter] water rate tested in accordance ASTM E331.

1.5 SUBMITTALS

- A. Submit in accordance with Section [01 33 00] [01330] - Submittal Procedures:
 1. Product data for all proposed components, materials, products, and accessories. For each type glass, provide maximum allowable stress in both horizontal and vertical directions.
 2. Shop drawings:
 - a. Plans and sections showing components, layout, configuration, and dimensions.
 - b. Illustrate method of assembly, installation, and glazing.
 - c. Provide details for secondary support framing, connections, joints, and other fabrication and installation conditions.

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- d. Indicate required tolerances and coordination with adjacent elements and work of other trades.
3. Calculations: Show compliance with performance criteria and applicable loads. Include calculations for structural sealant joint design indicating structural bite, glueline thickness, shear, and other parameters.
4. Samples:

******* Edit the following list to reflect components required for glass floor. *******

- a. [6 by 6 inches] [152 by 152 mm] minimum size for each type glass.
- b. [6 inches] [152 mm] minimum length of [secondary support framing.] [laminated glass joists.]
- c. [6 inches] [152 mm] minimum length of glass floor panel and structural silicone sealant joint.
- d. Sealant colors.
5. Manufacturer's installation and maintenance instructions.
6. Certificates or test reports demonstrating components and methods meet specified requirements.
7. Data showing compliance with manufacturer's and installer's qualifications specified in Paragraphs [1.6.C and 1.6.D] [_____]. Provide descriptions, locations, photographs, references, and completion dates for previous projects.
8. Copies of warranties required by Paragraph [1.11] [_____] for review by Architect.

1.6 QUALITY ASSURANCE

******* To ensure that completed glass floor assembly is structurally sound, weathertight, functional, durable, and safe; specify that design, engineering, fabrication, and supply of all components, materials, and products be the sole responsibility of an experienced single entity such as Innovative Structural Glass, Inc. It is critical that unique glass structures be both designed and fabricated by a single, knowledgeable entity assuming complete responsibility. Piece-meal assemblies of products from numerous manufacturers and fabricators without a comprehensive design and engineered solution is not a method for achieving a functional, safe, glass structure.**

- A. Single source responsibility: Design, structural engineering, and custom fabrication for glass floor assembly and supply of all components, materials, and products shall be sole responsibility of single manufacturer. Provision of products from numerous

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sources for site assembly without complete single source design and supply responsibility is not acceptable. Components to be fabricated or supplied by single source are:

******* Edit the following list to reflect components required for glass canopy. *******

1. Secondary support framing.
 2. Glass [as specified in Section [08 80 00] [08800] - Glazing].
 3. Structural silicone sealant, backers, setting blocks, spacers, fittings, and other installation accessories.
 4. All other components, products, and materials required for complete, functional glass floor.
- B. Single installation responsibility: All components listed in Paragraph [1.6.A] [_____] shall be installed by a single installer.
- C. Manufacturer qualifications: Company specializing in designing, engineering, and fabricating unique, custom designed, glass floor assemblies, canopies, facades, entrances, storefronts, and other glazed structures.
1. Experience: 5 years minimum successful experience providing glass structures.
 2. Previous projects: Successfully completed 3 minimum glass structures of scope, type, and size as proposed Project.
- D. Installer qualifications: Company experienced in erecting custom designed, glass floor assemblies, canopies, facades, entrances, storefronts, and other glazed structures and acceptable to manufacturer for installing proposed structure.
1. Experience: 3 years minimum successful experience erecting glass structures.
 2. Previous projects: Successfully completed 3 minimum glass structures of scope, type, and size as proposed Project.
- E. Design structural components and develop shop drawings under direct supervision of professional structural engineer experienced in design of glass structures. Calculations and shop drawings shall bear engineer's seal.
- F. Safety glazing: Comply with Consumer Product Safety Commission 16 CFR 1201, ANSI Z97.1, and other applicable safety requirements. Each piece of safety glazing shall be permanently labeled with appropriate marking.

******* For large, more complicated glass floor assemblies it is appropriate that Innovative Structural Glass, Inc. send a field representative to oversee installation. Use the following**

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paragraph to require manufacturer's field representative. *****

- G. Manufacturer's field representative:
1. During installation, provide services of manufacturer's field representative knowledgeable of erection process for proposed glass floor.
 2. Manufacturer's representative shall observe installation, quality control, and certify work meets specified requirements.
 3. Manufacturer's representative shall submit report covering observations, procedures, noted deficiencies, corrective measures, and certification of proper installation.

1.7 MOCK-UP

******* For larger projects or complicated conditions a mock-up may be important to establish workability and performance of proposed glass floor. Include this article to request mock-up constructed on site separate from actual construction. *******

- A. In accordance with Section [01 40 00] [01400] - Quality Control, prepare separate mock-up illustrating construction method for glass floor. Mock-up shall demonstrate performance and establish workmanship quality standard.
- B. Provide framing to support floor mock-up to allow inspection from above and below.
- C. Mock-up shall be portion of floor assembly with glass panels, secondary support framing, spacers, setting blocks, backers, and structural silicone sealant. Construct with components proposed for actual installation.
- D. Approximate size: [6 by 6 feet] [2 by 2 m] [_____].
- E. Test mock-up with [applied live loads to verify structural capacity] [water hose to verify weathertightness] [other test] to verify [type of performance].
- F. Submit report describing tests, results, and any modifications made to correct deficiencies or to improve performance.
- G. Do not proceed with installation until mock-up has been inspected and accepted by Architect.
- H. Retain approved mock-up during construction as quality standard. Completely remove when work is accepted.

1.8 PRE-INSTALLATION CONFERENCE

******* Depending on project size, complexity of glass floor, and number of coordination**

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items, a pre-installation conference maybe important. Include this article to specify pre-installation conference. *****

- A. In accordance with Section [01 31 00] [01310] - Project Management and Coordination, convene a pre-installation conference at site prior to commencing work of this Section.
- B. Require attendance of entities directly concerned with floor [including manufacturer's field representative].
- C. Review at meeting:

******* Add to and edit the following list to reflect project conditions. *******

- 1. Coordination with primary floor system and floor finishes.
- 2. Schedule, sequence, and method for installing glass floor and coordination with other work.
- 3. Safety procedures.
- 4. Availability of system materials.
- 5. Pre-installation test reports and recommendations.
- 6. Chemical compatibility of support framing, glass panels, sealants, and other glazing materials.
- 7. Protection of adjacent items and finishes.
- 8. Approved mock-up to be used a measure of acceptance.
- 9. Other items related to successful execution of work.

1.9 PRODUCT HANDLING

- A. Protect glass and other components during delivery, storage, and handling in accordance with manufacturer's instructions. Prevent edging chipping and other damage.
- B. Do not store glass panels on site for extended time.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. During glazing, maintain [40 degrees F] [4 degrees C] minimum temperature.

1.11 WARRANTIES

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- A. Provide under provisions of Section [01 77 00] [01770] - Closeout Procedures:
1. Manufacturer's 2 years warranty to cover design, fabrication, and materials against defects and failure to perform and remain air and water tight. Warranty to provide for replacement of defective components.
 2. Glass fabricator's warranties: 5 years warranty to cover replacement of laminated glass units in event of delamination, edge separation, and blemishes.
 3. Installer's 5 years warranty to cover installation against defects and failure to perform and remain air and water tight. Warranty to provide for required repairs.

PART 2 - PRODUCTS

2.1 ACCEPTABLE DESIGNER-MANUFACTURER

- A. Glass floor assembly shall be designed and fabricated by Innovative Structural Glass, Inc.
1. Address: 44299 Buckhorn Trail, Three Rivers, California 93271.
 2. Phone: 559-561-7000.
 3. Website: www.structuralglass.com
- B. Requests to use design services and products of another manufacturer must be submitted in accordance with Section [01 63 00] [01630] - Product Substitution Procedures.

2.2 GLASS FLOOR COMPONENTS

******* Innovative Structural Glass, Inc. typically fabricates glass floor panels from laminated glass. Insulating glass is not required for exterior conditions. Laminated glass is fabricated by bonding two or more glass panes with a flexible interlayer material. Laminated glass qualifies as safety glass. When broken, laminated glass tends to remain in place with glass particles adhered to interlayer.**

Fully tempered glass also qualifies as safety glass. It tends to break into small cubical pieces. However, tempered glass used as single glass layer in floor assemblies requires a screen be installed below it. For aesthetics, monolithic tempered glass is not recommended for floors.

As previously noted, glass products can be specified in this section or in Section 08 80 00 (08800) - Glazing with a reference in this section. Edit the following to reflect where glass is being specified. *****

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- A. Type of glass: [As specified in Section [08 80 00] [08800] - Glazing.] [Laminated glass fabricated by bonding two or more glass panes with transparent, flexible interlayer material in accordance with ASTM C1172. Laminated glass shall meet requirements of ANSI Z97.1 and CPSC 16 CFR to qualify as safety glass.

******* Laminated glass panels can be fabricated with either annealed, heat strengthened, or fully tempered glass. Heat strengthened glass is approximately twice as strong as annealed glass of equal thickness. Fully tempered glass is approximately four times as strong as annealed glass of equal thickness. Edit the following to reflect if glass joists are required. *******

- B. Fabricate laminated glass for floor panels [and joists] from either ASTM C1036 annealed, ASTM C1048 Kind HS heat strengthened, or ASTM C1048 Kind FT fully tempered glass as determined by manufacturer to accommodate Project design and performance requirements specified in Paragraph [1.4] [_____].

******* Edit the following paragraph to reflect if clear, color tinted, or translucent glass is required. *******

- C. Color: [Clear.] *** [[Blue] [Light green] [Dark green] [Light gray] [Medium gray] [Dark gray] [Bronze] [_____] color tinted.] *** [Translucent with frosted interlayerment.]

******* Thickness of glass floor panels will depend on spans, loads, and other project conditions. Minimum thickness should be 1-1/4 inches (32 mm). *******

- D. Glass floor panel thickness: Determined by glass floor manufacturer to accommodate Project design and performance requirements specified in Paragraph [1.4] [_____].

******* Include the following paragraph if glass floor joists are required. Joists need to be sized by manufacturer to accommodate loading conditions. If two glass panels bear on joist, a minimum thickness of [2 inches] [51 mm] is required. Aesthetics and other project conditions may determine minimum glass joist depth. *******

- E. Glass joist size: Determined by glass floor manufacturer to accommodate Project design and performance requirements specified in Paragraph [1.4] [_____]. Minimum size shall be [2 inches] [51 mm] [_____] thick by [16 inches] [406 mm] [_____] deep by length to span opening.
- F. Clean cut glass units to required sizes. Edges exposed to view after installation shall be highly polished with arised corners and edges.

2.3 SECONDARY METAL SUPPORT FRAMING

******* Glass floor panels can be supported and framed with metal sections such as steel,**

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stainless steel, and aluminum. Material selection can be made by design professional in conjunction with Innovative Structural Glass, Inc. or determination can be delegated to manufacturer. This article can be used as a format to be edited and completed to specify metal support framing. Contact Innovative Structural Glass, Inc. for assistance in planning, designing, selecting options, and detailing custom metal support framing. *****

- A. Secondary framing sections: Provide metal framing to support glass floor panels as detailed on Drawings and approved shop drawings.

******* Tubular or solid sections and either cold-formed, extruded, and hot-rolled members can be used as framing. Various finishes are also available. Edit the following paragraph to indicated type of metal support framing. *******

- B. Material: [Cold-formed from low carbon, hot dipped galvanized steel complying with ASTM A653 and finished with [electrostatically applied powder paint coating] [____].] *** [Cold-formed from stainless steel complying with ASTM A167 Type 304 with [brushed satin finish] [reflective polished finish] [____].] *** [Extruded aluminum complying with ASTM B221 with [[clear] [bronze] [black] anodized finish.] [fluoropolymer colored paint coating[____].]] *** [Hot rolled solid steel shapes with [electrostatically applied powder paint coating] [____].]
- C. Material minimum thickness: As determined by manufacturer to meet performance requirements specified in Paragraph [1.4] [____].
- D. Size, shape, and configuration: [As indicated on Drawings and approved shop drawings.] [As designed by manufacturer to efficiently frame glass structure and meet design criteria specified in Paragraph [1.4] [____].]
- E. Corner joints: [Coped, mechanically fastened, and sealed to prevent water leakage.] [Mitered, welded, and finished smooth and flush with adjacent surfaces.]

******* When glass floor panels are inserted in cast concrete floors, metal reglets may be used to support panel edges and provide nonporous surface for adhering glass panel with structural silicone sealant. Include the following paragraph for this option. *******

- F. Glazing reglet: L-shaped, [metal] reglet, [____] by [____] [inches] [mm] to be cast into concrete floor system.

******* Some type of bearing assembly needs to be provided to receive glass joists such as metal joist pockets cast into the concrete floor system. Include the following paragraph if glass floor joists are being specified. *******

- G. Glass joist bearing assembly: [Design and provide bearing assembly to receive and secure laminated glass joists.] [Provide channel shaped, [metal] glass joist pockets for embedding in concrete floor structure as detailed on Drawings and approved shop drawings.]

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2.4 STRUCTURAL SEALANT GLAZING MATERIALS

- A. Provide glazing accessories, anchors, and fasteners of type and size recommended by glass floor manufacturer and as required for complete, functional, weathertight installation.
- B. Contact structural sealant: High performance, two component, non-sag, neutral cure, ultraviolet resistant, silicone sealant designed for structural glazing and complying with ASTM C920 and C1184.
- C. Sealant backing: Provide backing as recommended by sealant manufacturer and complying with ASTM C1330. Backing shall be greater than joint opening by 25 percent minimum.
- D. Setting blocks and spacers: Compatible with silicone sealant, complying with ASTM C864, and recommended by sealant manufacturer.
- E. Masking tape: Non-staining, non-absorbent type compatible with silicone sealant and adjacent surfaces.
- F. Cleaners and primers: Recommended by sealant manufacturer to be compatible with substrate and glazing materials.

PART 3 - EXECUTION

******* Edit this article to reflect type of glass floor assembly and components being installed. Delete non-applicable items and requirements. *******

3.1 COORDINATION

- A. Coordinate provision of glass floor with construction of support framing specified in [Section [03 30 00] [03300] - Cast-in-Place Concrete.] [Section [05 11 00] [05110] - Structural Metal Framing.] [Section [____].] Ensure that provision is made for attachments and transfer of calculated loads. Provide [inserts,] [anchors,] [bearing plates,] [reglets,] [joist pockets,] [____] and other attachment items in sufficient to be accurately placed.
- B. Coordinate provision of glass floor with floor finishes specified in Section [09 ____] - [____] to ensure that transitions will be flush and smooth.
- C. Field verify dimensions prior to fabricating glass floor components.

3.2 INSPECTION

- A. Prior to delivery of glass panels to site, verify that support framing and substrates are ready to receive glass floor. Verify alignment, dimensions, and tolerances are correct.

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- B. Report unacceptable conditions and deficiencies. Do not proceed with installation until corrective action has been performed.
- C. Inspect glass panels for chipped edges, scratches, abrasions, and other damage.

3.3 GENERAL INSTALLATION

- A. Site assemble and erect glass floor in accordance with approved shop drawings, manufacturer's installation instructions, and GANA Glazing Manual.
- B. Damaged glass: Do not install glass with edge damage or other imperfections. Remove from site and replace.
- C. Allow for settling, expanding, and contracting to occur without breaking glass.
- D. Do not field cut or alter structural framing without written approval from manufacturer and Architect.

3.4 METAL FRAMING

******* Include this article if glass floor panels are installed on secondary metal support framing. *******

- A. Use anchorage devices to securely attach secondary metal framing to support glass floor panels and to accommodate construction tolerances and irregularities.
- B. Insulate dissimilar metals to prevent electrolysis and other forms of corrosion with bituminous paint or non-absorptive gasket to prevent contact.
- C. Align framing plumb, level, and free of warp or twist.

1.5 PRE-INSTALLATION TESTING

******* It is important that adhesion of silicone sealant to substrate be tested prior to installation to determine if primer, additional preparation, or different sealant are required. *******

- A. Adhesion testing: Prior to application of sealant, test to ensure sealant satisfactorily adheres to substrate.
 - 1. Apply sealant to sample substrate and perform hand-pull tab test in accordance with ASTM C1193, Method A.
 - 2. Determine if primer is required. If so, re-test using primer.

******* Chemically incompatible spacers, setting blocks, and other glazing accessories can**

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lead to sealant discoloration and loss of adhesion. *****

- B. Compatibility testing: Prior to application of sealant, test spacers, setting blocks, and other glazing accessories to determine compatibility with structural silicone sealant in accordance with ASTM C1087. Incompatible accessories shall be replaced with ones recommended by and tested by sealant manufacturer as acceptable.

3.6 STRUCTURAL SILICONE GLAZING

- A. Install glass floor panels with structural silicone sealant as detailed on Drawings and approved shop drawings and in accordance with manufacturer's installation instructions.
- B. Cleaning: Thoroughly clean all joints and glazing areas immediately prior to sealant application. Remove oil, dust, grease, water, surface dirt, contaminants, and other foreign matter. Vacuum or blow out dust and loose particles from joints and solvent wipe clean in accordance with ASTM C1193.
- C. Apply primer only if determined by testing specified in Paragraph 3.5 and recommended by sealant manufacturer.
- D. Mask areas adjacent to sealant joints to ensure neat sealant line. Do not allow tape to touch surfaces to which sealant will be applied.

******* Include the following paragraph if glass joists are being used. *******

- E. Glass joists: Install joists in [joist pockets] [joist bearing assemblies] as detailed on approved shop drawings. Use temporary spacers to support joists and offset joist end for support members and bearing assembly. Ensure joists are level and plumb. Apply structural silicone sealant in voids and allow to cure. When cured remove spacers and fill voids with sealant.
- F. Glass panel perimeter joint: Install temporary spacers to support glass above perimeter framing and to offset from perimeter framing. Apply structural silicone sealant in space between glass floor panel and perimeter frame. Tool joints concave. After sealant cures, remove temporary spacers and fill resulting voids with sealant.

******* Include the following paragraph if glass floor panels are supported on laminated glass or metal joists. *******

- G. Glass panel joints over joists: Install temporary spacers to support glass floor panels above joists and to separate floor panels. Apply structural silicone sealant in joint between glass floor panels and between panels and joists. Tool joints concave. After sealant cures, remove temporary spacers and fill resulting voids with sealant.
- H. Apply structural silicone sealant in continuous operation. Tool sealant immediate before skin forms. Tool concave to ensure complete contact.

INNOVATIVE STRUCTURAL GLASS SPECIFICATIONS

Innovative Structural Glass, Inc., 40220 Pierce Drive, Three Rivers, California 93271

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- I. Post application test: After structural sealant has cured 14 to 21 days, conduct field test as prescribed by manufacturer to test sealant adhesion. Replace sealant not passing test.

3.7 CLEANING

- A. Remove excess sealant by moderate use of solvent cleaner acceptable to sealant manufacturer.
- B. Exercise care in removing mortar, cementitious materials, and sand from glass and frames. Do not wipe surfaces in order to avoid scratching.
- C. Touch up damaged or abraded factory finishes with coating to match type and color of original finish.
- D. Wash exposed surfaces with solution of mild detergent applied with soft cloth.

END OF SECTION