

ADVOCACY COMMITTEE

One-Pagers

- The NGA Advocacy Committee develops one-pagers to give legislators and stakeholders a quick overview of issues, with a direct request from the glass and glazing industry. One-pagers are available for direct download (no log-in required) at glass.org to make them even easier to share with legislators and stakeholders.
- **New!** [High-Performance Glazing Promotes Building Resiliency](#)
- **New!** [School Security: Windows Respond First](#)
- **New!** [Registered Apprenticeship Programs](#)
- **Updated!** [Saving Birds with Effective Glazing Solutions](#)
- Also available: [Flat Glass Global Warming Potential](#)

Legislative Bill Progress

- Review the legislative bills that have infrastructure monies allocated that could apply to the glazing industry
 - NGA's Advocacy Committee engaged with DOE's request for submittals on recommendations for better energy savings for the country by encouraging better glazing and wider adoption of the current building codes in more jurisdictions.

Physiological Impacts of Light on Human Health & the Implications of Glazing

- This task group is for staying informed about the latest research concerning light and human health and the implications of glazing.
 - Group met in May. Will meet again in September for another update.

FORMING COMMITTEE

Buy Clean California Act (formerly AB262)

- New GWP limit for flat glass set January 1, 2022
 - 1430 kg CO2 eq
 - Equal to the industry average
- Awarding authorities began to gauge GWP compliance of eligible materials with the required Environmental Product Declaration (EPD) on July 1, 2022.

Coated Glass AIA Presentation

- Task group is updating the current AIA presentation

Embodied Carbon in Construction Calculator (EC3 Calculator)

- Tool for benchmarking sustainability data
 - NGA and several member companies are working with Building Transparency to develop the glass category for this tool.

Health Product Declaration (HPD) Collaborative

- HPD Collaborative understands clarification is needed and would like to develop better way to determine how glass should be reported on HPD. What discussions do NGA members need to

engage in such as: standardized set of ingredients? Standardized finished product constituent analysis?

- Initial call to be scheduled

FABRICATING COMMITTEE

New! Glossary of Architectural Glass & Glazing – published May 2022

- From A to Z and every letter in between, NGA's Glossary of Architectural Glass & Glazing is an invaluable resource for industry veterans and new hires alike. Sorted in alphabetical order for easy reference, this glossary is the only comprehensive list of its kind covering the complete range of terms used in the architectural glass & glazing industry.

Glazing Manual Update

- Frequently referred to as the "industry bible," NGA will be updating their Glazing Manual in 2022. The Glazing Manual is recognized as the definitive source in the glass and glazing field. This manual includes complete information about primary and fabricated glass products, quality standards, design considerations, general and specific glazing guidelines and glazing in hazardous locations.
 - Being reviewed; target publication December 2022

Decorative

New! Types of Decorative Glass – published January 2022

- Glass is an ideal material for use in decorative applications due to its versatility of design options paired with exceptional mechanical and chemical durability. Its ability to capture, reflect, absorb, and manipulate light make it the ideal canvas to be the basis of inspiration and the medium of choice to create the spaces where we live, play, learn, work and heal. While the types of decorative glass are varied, this document defines the most common methods of decorating glass in the industry today.

New! Designing with Decorative Glass: Cast and Heat-Formed – completed July 2022

- This course is designed to educate architects and designers about the ways to incorporate decorative glass using cast and heat-formed glazing materials into a building space. It will review in detail a variety of cast and heat-formed decorative products that enhance aesthetic appeal and maintain occupant comfort.

Updated! Assessing the Compatibility of Glazing Materials and Components – republished March 2022

- Assessing the compatibility of materials and components in glazing systems is essential to ensuring the long-term performance of these systems. However, given the number and diversity of materials and components, it is challenging to test every possible combination against every conceivable factor. This document is intended to serve as a guideline to conduct performance testing on specific configurations, ultimately leading to more effective consideration of the factors involved in compatibility testing of glazing materials. This GTP is intended for glazing professionals or anyone with an interest in evaluating the compatibility of glazing materials and components. Note that even when compatibility is confirmed, in applications where adhesion of

materials is critical for the performance of the glazing system, such adhesion must be verified independently.

Updated! Assessment of the Weatherability & Durability of Decorative Glass – republished May 2022

- Decorative glass products are being integrated into an increasing number of new interior and exterior applications. Assessing the ability of decorative glass products to sustain conditions prevailing in a given interior or exterior environment becomes an important question. The objective of this glass technical paper is to offer guidance to the industry with respect to the weatherability and durability properties of decorative glass.

Updated! Guidelines and Best Practices on how to Manage Color Variance of Decorative Glazing – republished February 2022

- Determining the acceptability of a color in decorative glazing is a process that requires participation and cooperation from the entire supply chain. A basic understanding of perceived color and the factors that affect it are critical to the success of establishing a color standard. This document offers a brief overview of perceived color and measurement methods that can be used in establishing a color standard for decorative glazing.

Benefits of Decorative Glass in Daylighting Applications

- For as long as building construction has existed, architects and designers have recognized the power of the sun to provide natural light. In today's modern world, the architectural and design community continue to incorporate techniques that harness natural light to create comfortable, energy-efficient and aesthetically pleasing interiors.
 - Call for volunteers

Decorative Glazing Manual

- This new manual will cover all things decorative glass: glass types, advantages, design considerations, handling and processing guidelines, installation techniques, maintenance and cleaning, and sustainability.
 - Outline is complete and a draft has been started. Target publication date is 2023.

Defining an Industry Acceptable Color Variance for Decorative Glass

- Establish guidelines on how to set an industry acceptable color variance with a delta E number for decorative glass product IE: Monolithic back painted (single color, full coverage), laminates with color interlayer... Once those products are well covered, the task group will try to work on more complex decorative products (combination of laminates, back painted, acid etch, colored glass...).
 - Tabled

LEED White Paper – Decorative

- The intent of this Paper is to address areas of the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED®) Rating System that are relevant to the use of Decorative Glass. This document describes the ways in which decorative and mirror glass products are

consistent with the intent of the LEED Rating System. Although individual building products do not in themselves constitute conformance to the LEED criteria, depending on the amount and type of glass used in a project, this versatile material has great potential to help achieve LEED credits. Also found within is a comparative analysis between LEED® 2009 and LEED® v4.

- Being updated with current version of LEED

Energy

Updated! Building Energy Performance Criteria Terms – republished June 2022

- A list of applicable energy-related terms used in the glass and glazing industry.

Updated! Building Envelope Commissioning – republished February 2022

- The purpose of this Paper is to acquaint those associated with the glazing industry with the impact Building Envelope Commissioning ("BECx") can and will have as commissioning is implemented in construction projects. BECx is a process intended to verify through standards and testing that the materials, components, and systems that make up the building envelope achieve the objectives and meet the performance requirements of the owner.

AIA Presentation: Daylighting

- This new AIA presentation will discuss the benefits of incorporating daylight in buildings.
 - Being drafted

Alignment in US Energy Conservation Codes ASHRAE 90.1 and IECC

- This new GTP highlights the increase in stringency requirements in ASHRAE 90.1-2019 and IECC 2021 for commercial and residential fenestration products. Changes in the climate zone maps are shown, along with historical energy performance criteria tables for 2009-2021 versions of the energy codes. Estimates of glazing products required to meet the current energy code versions for each climate zone are also included for reference.
 - At ballot

PCR for Windows: joint with FGIA/WDMA

- Discussion needed to add new section.

PCR for Processed Glass

- Expired August 2021. No response from ULe to update.

Thermal Comfort

- This new GTP will discuss the benefits of glass or windows with thermal comfort.
 - Initial call to be scheduled

Fire-Rated

Challenges Faced by Fire-Rated Glazing

- This new GTP will discuss the advantages fire-rated glazing can offer.
 - Initial call to be scheduled

Insulating

Updated! Describing Architectural Glass – republished April 2022

- Architectural glass products used in commercial construction applications often incorporate multiple lites of glass with different colors, thicknesses, strength, coatings and other surface and edge treatments. NGA recommends the terminology and practices for describing the construction of architectural glass products to be used in windows, doors, skylights, window walls and curtain walls contained within this document.

Updated! Performance Improvements of IGUs – republished July 2022

- The center of glass thermal performance of an IGU is a function of glass type, coating, and size and gas fill of cavity gap. This document will address these areas only and does not address IGU edge conditions.

Compatibility Testing of Insulating Glass Primary Sealant with Respect to Glazing Materials

- The scope of this document is to provide information on compatibility testing of glazing cavity materials commonly used with Polyisobutylene (PIB) primary sealant in insulating glass units (IGUs).
 - Will go to ballot in August

Guidelines for the Appearance of Insulating Glass Unit Edges in Commercial Applications at the Time of Installation

- This Paper addresses issues related to the appearance of insulating glass unit (IGU) edges in both captured and silicone structural glazed (SSG) commercial glazing systems. Components of IGU edges are discussed, and acceptance criteria provided where appropriate. It is intended to address both vision and spandrel IGUs. Viewing and acceptance criteria are the same for both vision and spandrel units. These guidelines assume IGUs are sized correctly for the opening dimension and glazed according to NGA glazing guidelines. It was written to address two lite (double glazed) IGUs. However, much of the information pertains to IGUs with three or more lites (triple glazed, quad glazed, etc).
 - Task group work

Guidelines for Use of Capillary Tubes

- While the benefits of using capillary tubes are straightforward, there are numerous issues when considering their use including: Magnitude of elevation change to require use; IGU pressurization due to temperature difference; Use with insulating gases; IGU sizes and aspect ratios; Glass thickness, type and coatings; Glazing space thickness; Short term (in transit) vs. long term (installed) elevation and/or temperature changes; Types of edge seal construction; Multiple-cavity IGUs (triples, quads, etc.); Proper IGU design and fabrication for use of capillary tubes
 - Call for volunteers

Secondary Sealants

- This will be a new GTP that discusses the design considerations for the structural bite dimension of a silicone secondary sealant in a dual sealed IGU.
 - Initial call to be scheduled

Laminating

Dynamic Glazing for High Performance Buildings

- The exterior environment of a building envelope is subject to ever-changing environmental conditions such as wind, humidity, rain, sun and ambient temperature. One of the most significant influences on the building envelope design is the sun. The sun is composed of ultraviolet, visible and infrared light that is dynamic and constantly changing relative to the building. Designs that do not take the sun's influence into account can subject the occupants of the building to conditions such as uncomfortable glare, solar heat gain, variable temperatures, and the early decay of fabrics, and surfaces that fade over time. This document discusses the characteristics of dynamic glazing which can mitigate against the influence of the sun.
 - Initial call to be scheduled

Emergency Egress Through Laminated Glazing Materials

- Building codes often require, and/or modern architectural designs specify, glazing materials that provide enhanced performance levels of security and safety. These performance properties include: resistance to ballistics, blast, hurricane/cyclic wind pressures and physical attack. Glazing applications may also specify such properties as sound reduction, fade resistance, and solar and thermal control. Because laminated glazing materials are able to meet such requirements and design criteria, they are finding application in a broader range of installations than ever before. The use of laminated glazing in residential and commercial installations has led to inquiries by design professionals and specifiers regarding the reaction of public safety officials to these products. This document is intended to inform building owners, design professionals, and specifiers about emergency ingress and egress considerations when using these products.
 - Call for volunteers

Laminated Glazing Reference Manual Update

- This manual presents useful information, technical and performance data and the installation guidelines for laminated glass products. The 2019 edition includes the latest information on laminating interlayers, as well as in-depth discussions of the applications of laminated architectural glass including: safety, solar control, ultraviolet radiation, sound control, security, sloped glazing & skylights, wind storms & hurricane resistance, and earthquake resistance.
 - Task group work

Laminated Glass Constructions for Deflection Testing

- Reflect specifics of the testing, including heights (taken from the ESM), room temperature PVB interlayer, edge connections, etc.;
 - Task group work

Use of Glass in Guardrails

- Formerly *Use of Laminated Glass in Glass Railing Systems*, this GTP will be updated using the 2021 International Building Code.
 - Tabled; waiting on ASTM WK59324 Standard Practice/Guide for Design of Glass Railing, Guards and Balustrades.

Mirror

Mirror Decorative Design Guide

- The current Mirror GTPs talking about storage, handling, fabrication, installing, cleaning, and types will be combined into one document to create a new Design Guide.
 - Initial call to be scheduled

Protective Glazing

AIA Presentation: Bird-Friendly

- This new AIA presentation will discuss the ins and outs of Bird-Friendly Glazing Design.
 - Being drafted

AIA Presentation: School Security

- This new AIA presentation will provide information for architects on security glazing options for windows and doors installed in schools.
 - Being drafted

ASTM WK78966 - Standard Test Method for Forced-Entry-Resistance of Fenestration Systems after Simulated Active Shooter Attack

- This test method sets forth the requirements and testing procedures to test forced-entry-resistant building components, construction components, and specialty security equipment. This test method is intended primarily for manufacturers to test and rate their windows, doors, modular panels, glazings, and similar products to ensure that all manufactured products meet the necessary requirements for forced-entry protection after sustaining an active shooter assault. This test method is currently designed to simulate an active shooter weakening the system with repetitive shots followed by mechanically driven impact to simulate forced entry.
 - NGA task group worked on this standard with the intention of going to ASTM for an Active Shooter standard. It is currently in the final stages of the ASTM ballot.

Bullet Resistant Glazing

- Bullet resistant glazing provides an improved safety barrier against ballistic attack. Bullet resistant glazing materials include all-glass laminates, glass-clad polycarbonate laminates, and other laminated or monolithic plastics. This Paper discusses common applications, ballistics test standards and certification programs.
 - At ballot

Detention Facility Glazing

- Detention facility glazing is defined as translucent or transparent material constructed to withstand measurable, complex loads from intentional, sustained threats or attacks in a detention and correctional environment. Detention glazing must comply with testing standards as set forth by several administrative bodies depending on whether the facility is a local, state or federal facility. Security glazing proposed to be used in adult and juvenile detention facilities must be of the appropriate rating in relationship to the security level of the facility.
 - At ballot

Performance Criteria for Glazing Subjected to Seismic Events

- Shaking and twisting buildings, uplifting of the earth, people screaming, running and trying to avoid falling debris. This can be a typical scene during a damaging earthquake. Significant research has been done on the causes of earthquakes; less work has been done on how to keep buildings intact and functioning during these events. Engineers and architects must follow code requirements for the structural performance of buildings in seismic zones. This glass information bulletin focuses on the use of glass and glazing as non-structural components installed in buildings in seismic-prone areas.
 - Reviewing ballot comments

Tempering

Updated! Guidelines for the Production of Heat-Treated Architectural Flat Glass – republished April 2022

- Heat-treated glass is used in many of today's architectural glazing applications where increased strength to resist glass breakage is desired. The process of heat-treating glass involves uniformly heating glass close to its softening temperature and then rapidly, and uniformly, cooling it. This Paper gives guidelines for producing heat-treated glass. Guidelines should be regarded as a general starting point, but for more detail consult your vendors and equipment manufacturers.

Updated! Iridescence Patterns in Heat-Treated Architectural Glass – republished April 2022

- Glass used in architecture today commonly includes clear and tinted glass substrates, low-emissivity and solar-control coatings, decorative ceramic-frit patterns and safety glazing considerations that require glass to be heat-treated. Heat-strengthened and fully tempered glass is designed to meet increased thermal and mechanical stresses, or other specified physical criteria. Tempered glass is also used to meet safety glazing code requirements. As a result of the heat-treating process, iridescence, or what is often referred to as a quench pattern/mark, strain pattern or anisotropy, may be visible in heat-strengthened and fully tempered glass under certain polarized lighting conditions.

Best Practices for Heat Soaking

- Consider adding best practices to existing Heat Soaking GTP.
 - Initial call to be scheduled

Evaluating Post-Finishing for Heat-Treated Glass Edges

- The test plan will determine if surface polishing and/or edge grinding following tempering reduces the glass strength.
 - Putting together a testing program for review

Methods of Measuring Optical Distortion in Heat-Treated Flat Architectural Glass

- As a result of heat-treating glass, optical distortions may arise from out-of-plane deformations of the glass surface. Currently, there are no industry-wide standards that specify acceptable values for these optical distortions; however, there are existing methods/instruments to measure them. The methods/instruments referenced in this document are designed and intended for in-plant use only. These methods for measuring distortion cannot be applied in the field on vertical glazing and cannot be used on insulating glass units.
 - Going to ballot in August

INSTALLING COMMITTEE

New! Thermal Bridging Considerations at Interface Conditions – published January 2022

- Educate the design community and the glazing industry on how to address the alignment of the thermal barrier in windows and curtain wall systems by providing continuity with the opaque insulation in surrounding constructions in perimeter conditions, in addition to air/water barrier that these details have traditionally furnished to date.

New! Manage Risks with Mockups – Glass Magazine article published January 2022

Frameless Shower Enclosures Installation Guide

- This document will provide installation guidance for frameless shower enclosures, including safety and glass handling.
 - Being drafted

NIBS Whole Building Design Guide

- The glazing sections of the NIBS Whole Building Design Guide will be updated with new technology and industry resources.
 - Task group work

Specifications

- Task group is working on updating the Glass & Glazing section, MasterSpec Division 08.
 - Task group completed Security Glazing specification, it will move to Peer Review. Initial call for next specification to be scheduled.

Value Engineering

- This new task group will discuss challenges in implementing new high-performance glazing products and possibly develop new resources on the topic.
 - Initial call to be scheduled

Members interested in joining any task group, please email ajohnson@glass.org