Technical Update

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Thirsty Thursdays – Monthly Webinars

- Jan: CAN/CGSB 12.1 - Safety Glazing
- Feb: EPDs and why you need it
- Mar: ASTM E1300 changes
- Apr: ASTM EMI standard
- May: Building Enclosure Testing
- June: ISC Blast Criteria
- July: Contracts: top 10 things to look for

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Glass Informational Bulletins
Published 2017 and YTD 2018

- **Building Envelope Contractors Division**
  - Overview of Building Information Modeling (BIM) for Glass and Glazing Systems

- **Decorative Division**
  - Assessing the Compatibility of Glazing Materials and Components
  - Benefits of Decorative Glass in Daylighting Applications
  - Guidelines and Best Practices on how to Manage Color Variance of Decorative Glazing
  - LEED White Paper – Decorative
  - Understanding Reflective Distortion in Mirror Installations

- **Energy Division**
  - Building Energy Performance Criteria Terms and References Related to Glass and Glazing
  - Building Enclosure Commissioning
  - PCR/EPD Survey
  - Health & Wellness Benefits of Daylighting

- **Flat Glass Manufacturing Division**
  - Flat Glass Industry Standards
  - LEED® Recycled Content for Glass
Glass Informational Bulletins
Published 2017 and YTD 2018

- **Insulating Division**
  - Introduction to IG AIA
  - AIA Multiple Glazing

- **Laminated Division**
  - Use of Laminated Glass in Glass Railing Systems
  - Emergency Egress Through Laminated Glazing Materials
  - Effects of Moisture, Solvents and Other Substances on Laminated Glazing Edges
  - Dynamic Glazing for High Performance Buildings

Glass Informational Bulletins
Published 2017 – YTD 2018

- **Tempering Division**
  - Iridescence in Heat-Treated Architectural Glass
  - Guidelines for the Production of Heat-Treated Architectural Flat Glass
  - One Optical Number - Distortion
Glass Informational Bulletins
Published 2017 – YTD 2018

- Protective Glazing Council
  - Bullet Resistant Glazing
  - Detention Facility Glazing
  - Performance Criteria for Glazing Subjected to Seismic Events

Glass Informational Bulletins/Manuals
Under Development

- Building Envelope Contractors Division
  - Glass and Glazing Estimating Essentials (formerly Blue Print Reading & Labor Estimating Course) – estimated to be published in June 2018
  - Project Managers Reference Manual – estimated to be published in 2018
  - Commercial Fenestration Systems Manual
Glass Informational Bulletins/Manuals
Under Development

- Decorative Division
  - How to View Decorative Products in Interior and Exterior Applications
  - Defining an Acceptable Color Variance for Decorative Glass
  - Decorative Glazing “Reference” Manual
  - Trends in Decorative Paint Coatings

- Energy Division
  - Energy Applications

Glass Informational Bulletins
Under Development

- Flat Glass Manufacturing Division
  - Coated Glass AIA Presentation
  - LEED Recycled Content for Glass
  - Daylighting
Glass Informational Bulletins
*Under Development*

**Insulating Division**
- Understanding reflected Solar Energy of Glazing Systems in Buildings
- Compatibility Testing of Glazing Materials Related to the Performance of PIB in IGUs (joint with IGMA)
- PIB and Primary Sealants (joint with IGMA)
- Unsupported Edges of IGUs (joint with IGMA)
- Unique IGUs

Glass Informational Bulletins/Manuals
*Under Development*

**Laminating Division**
- Compression of Interlayers
- Hurricane Product Substitution
- Laminated Glass Deflection Table
- Tornado GIB
- Jumbo Glazing
- Laminated Glass Use in Furniture
- Point-Supported Glass
Glass Informational Bulletins/Manuals

Under Development

- **Tempering Division**
  - Heat-Treated Glass Surfaces Are Different
  - Heat Soak
  - Thermal Stresses in Spandrel Glass
  - Exposed Edges (*joint with Laminating Division*)
  - Heavy Glass Door Design Guide – 2018
  - Point-Supported Glass and Glass Fin Design

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**GANA Engineering Standards Manual**

Recommendations for Fully Tempered Interior Butt Glazed Fixed Glass Panels

- IBC Section 2403.4 states: *Interior Glazed Areas.* Where interior glazing is installed adjacent to a walking surface, the differential deflection of two adjacent unsupported edges shall not be greater than the thickness of the panels when a force of **50 pounds per linear foot** (plf) (730N/m) is applied horizontally to one panel at a point up to **42 inches** (1067mm) above the walking surface.

- IBC Section 1607.15 states: *Interior walls and partitions.* Interior walls and partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength and stiffness to resist the loads to which they are subjected but not less than a horizontal load of **5 psf** (0.240 kN/m²).
GANA Engineering Standards Manual
Minimum Thickness Guidelines for Fully Tempered Interior Butt Glazed Fixed Glass Panels - 2-side supported interior mounted at top/bottom

<table>
<thead>
<tr>
<th>IBC 1607.14</th>
<th>IBC 1607.14</th>
<th>IBC 2003.4</th>
<th>IBC 2003.4</th>
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</thead>
<tbody>
<tr>
<td>Load - 5 lb/sq ft</td>
<td>Load - 5 lb/sq ft</td>
<td>Load - 50 lb/ft</td>
<td>Load - 50 lb/ft</td>
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<tr>
<td>Unsupported span from top to bottom of glass</td>
<td>Unsupported span from top to bottom of glass</td>
<td>Unsupported span from top to bottom of glass</td>
<td>Unsupported span from top to bottom of glass</td>
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<tr>
<td>Up to 1.5 m (5 ft)</td>
<td>Over 1.8 m (6 ft) up to 2.1 m (7 ft)</td>
<td>Over 8 m (10 ft) up to 3.4 m (11 ft)</td>
<td>Over 3.4 m (11 ft) up to 3.7 m (12 ft)</td>
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<td>Over 2.1 m (7 ft) up to 2.4 m (8 ft)</td>
<td>Over 2.4 m (8 ft) up to 2.7 m (9 ft)</td>
<td>Over 3.4 m (11 ft) up to 3.7 m (12 ft)</td>
<td>Over 3.7 m (12 ft) up to 4.3 m (14 ft)</td>
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<tr>
<td>Over 2.4 m (8 ft) up to 2.7 m (9 ft)</td>
<td>Over 2.7 m (9 ft) up to 3 m (10 ft)</td>
<td>Over 4.3 m (14 ft) up to 4.9 m (16 ft)</td>
<td>Over 4.9 m (16 ft) up to 5.2 m (17 ft)</td>
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<tr>
<td>Over 2 m (7 ft) up to 3 m (10 ft)</td>
<td>over 3 m (10 ft) up to 3.4 m (11 ft)</td>
<td>Over 4.9 m (16 ft) up to 5.2 m (17 ft)</td>
<td>Over 4.9 m (16 ft) up to 5.2 m (17 ft)</td>
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<td>over 3 m (10 ft) up to 3.4 m (11 ft)</td>
<td>over 3.4 m (11 ft) up to 3.7 m (12 ft)</td>
<td>over 5.2 m (17 ft) up to 8.2 m (28 ft)</td>
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<td>over 8.2 m (28 ft) up to 8.2 m (28 ft)</td>
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Glass Informational Bulletins
Under Development

- **Fire Rated Glazing Council**
  - Fire-Rated Glazing Today AIA Presentation
  - Fire-Rated Glazing Changes in IBC

- **Protective Glazing Council**
  - Blast Mitigating Glazing
  - *PGC Security Window Workshop and PEC Security Window Design Training in Vienna, VA – August 14-16, 2018*
PCR, LCA, EPD participation

- GANA PCR for Flat Glass: UN CPC 3711 (2014)
- Product Category Rule (PCR) for Processed Glass (2016)
  - Fabricators - interested in working on an industry wide EDP? We have a survey out to the membership now seeking feedback on next steps.
- Cradle to Gate Window Product Category Rule (2015)

ASTM International participation

- Committee C 14 on Glass and Glass Products
  - C1048 - 12e1 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass - ballot comments
  - C1503-08(2013) Standard Specification for Silvered Flat Glass Mirror - will go out for ballot for 5 year review
ASTM International participation

- Committee C 14 on Glass and Glass Products
  - C1162-2014 Standard Specification for Laminated Architectural Flat Glass - will go out for ballot for 5 year review
  - C1651-11 Standard Test Method for Measurement of Roll Wave Optical Distortion in Heat-Treated Flat Glass - being revised

ASTM International participation

- Committee C 14 on Glass and Glass Products
  - WK47853 - New Test Method for Bird Collision Deterrence Material Threat Factor
    - Define minimum and maximum glazing characteristic criteria in order to be clear what portion of the glazing market can be tested in this first test (and we envision other conceptual versions of the tunnel for testing of additional glazing characteristics)
    - Standard is intended to provide an Index for so-called Fly-through conditions in which a bird, unbeknownst to itself, is attempting to get to the other side of a barrier that it cannot see, which is replicated in this test by the Control Specimen.
ASTM International participation

- Committee C 14 on Glass and Glass Products
  - WK58123 * Cleaning Architectural Flat Glass
  - Research at Penn State continues

ASTM International participation

- Committee E06 on Performance of Buildings
  - E1300 -16 - Standard Practice for Determining Load Resistance of Glass in Buildings - new proposals on deflection appendix; pullout; ceramic enamel, material properties
ASTM International participation

- Committee E06 on Performance of Buildings
  - E2431-12 Standard Practice for Determining the Resistance of Single Glazed Annealed Architectural Flat Glass to Thermal Loadings - being revised
  - WK63025 * Design and Performance of Laminated Glass for use in the Construction of Aquariums and Swimming Pool
    - This practice addresses elements related to load-bearing laminated glass used in the construction of swimming pools and aquariums. This standard includes performance design, and safe behavior considerations. It addresses the characteristics unique to glass and laminated glass.

- WK59324 * Design of Glass Railings and Guards and Balustrades
  - This design guide specifies requirements to be followed in the design of permanent railing systems, guards and balustrades installed in and for assembly, commercial, educational, industrial, institutional, stadiums, recreational, and residential buildings and other structures such as towers or elevated platforms.

- WK17797 - Skylight Human Impact Resistance
  - This working group have decided on an impact load of 300lb at a height of 3 feet with a tapered sand bag. Just wrapped up ballots - a few negatives to discuss
ASTM International participation

- Committee E06 on Performance of Buildings
  - WK17797 - Skylight Human Impact Resistance
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ASTM International participation

- Committee E06 on Performance of Buildings
  - WK37764 - New Guide for Structural Use of Glass in Buildings
    - This guide describes procedures to determine the stability and load resistance (LR) of specified glass types, for reliable usage of glass in structural applications, where the glass is supporting other elements or is required to provide safety restraint to live loads. Currently, the group is working on an initial draft.
**ASTM International participation**

- Committee F12 on Security Systems and Equipment
  - F3006-13 Standard Specification for Ball Drop Impact Resistance of Laminated Architectural Flat Glazing - 5 year update
  - F3007-13 Standard Test Method for Ball Drop Impact Resistance of Laminated Architectural Flat Glass - 5 year update

**International Standards Organization (ISO) participation**

- ISO 20657 - Glass in building — Heat soaked tempered soda lime silicate safety glass.
  - Published 2017 - includes the Batch Type Heat Soaking Test and an In-line Heat Soaking Test.
    - in-line heat soak process - heat soak process which follows immediately after the quenching process whereby the glass temperature is directly reduced from quenching to the heat soak temperature in an in-line heat soak oven.
**International Standards Organization (ISO) participation**

  - Ceramic Enamel - durability
- ISO/TC 160/SC 2/WG 1 “Glass Strength”
  - Adding 2mm glass
  - Forced entry; severe wind
  - New ballistic

**Upcoming Meetings**

- PGC Security Window Workshop and PEC Security Window Design Training - Washington, DC - August 14-16th, 2018
  - facilitate government outreach for members to promote discussions on security glazing
  - for architects, engineers, installers/contractors, manufactures/fabricators, and government representatives
  - Department of Defense, US Army Corps of Engineers, General Services Administration, Department of Veterans Affairs, and other federal government agencies
Upcoming Meetings

- Fall Conference at GlassBuild America
  - September 11-14, 2018 - Las Vegas Convention Center, NV

Thank you Volunteers!

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