

# LAMINATED GLAZING

REFERENCE MANUAL

**NGA**

NATIONAL GLASS ASSOCIATION with GANA

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# Preface

**T**his Laminated Glazing Reference Manual is an updated edition of the original manual developed by the Glass Association of North America (GANA) in 2009. NGA and GANA combined into one association in February 2018.

This manual provides general descriptions concerning the basics of glass and glass performance. The manual does not purport to state that any particular type of glass or glass product should be used in any specific application. It is an educational tool as well as a guide to clarify and assist in the proper selection and specification of laminated architectural glazing materials. It is intended for use by architects, designers, engineers, component manufacturers (e.g., windows, doors, solariums, skylights, shower enclosures), and installers of laminated glazing materials in buildings. This manual provides both a broad-scope and detailed understanding of laminated architectural glazing materials. Laminated glass usage, performance characteristics, engineering information, technical data, and design opportunities, as well as how to handle, install and specify the products are addressed within.

The user of this manual has the responsibility to ensure that competent professionals select and install the glass in compliance with all applicable laws, rules, regulations, standards and other requirements. NGA does not design, develop or manufacture any products, processes or equipment referred to in this manual and, accordingly, makes no guarantee, representation or warranty, express or implied, as to their fitness, merchantability, patent infringement or any other matter respecting their performance. NGA cannot guarantee and disclaims any responsibility for any specific result relating to the use of this manual.

The standards referenced in the Laminated Glazing Reference Manual are under the jurisdiction of third-party organizations and agencies and are constantly subject to review and revision. The standards and similar documents referenced in this manual are those in effect as of the time of publishing. The

manual user should refer to, consult and comply with the most recent edition of the referenced standards.

This manual is reviewed and revised on a regular basis by members of the Fabricating Committee. Procedures for submitting new information for consideration during the revision process are contained in Chapter 11, Guidelines for Reference Manual Submittals.

This manual does not contain all of the information available from all sources regarding the subjects presented. Additional information should be sought from manufacturers' literature and applicable standards, codes and other regulations. Specifically, a review of all national, state and local building codes pertaining to glass safety and proper applications should be completed in order to identify all governing requirements and to assure product compliance. Except where specifically noted (i.e. footnotes, tables, charts), all standards referenced in this document are intended to be the latest available edition of such standards available at the time of publication.

## A. DISCLAIMER

This manual was developed by the National Glass Association (NGA) and this disclaimer is made by the NGA (the Provider). The Provider shall not be held liable for any improper or incorrect use of the materials or information described and/or contained in this manual and assumes no responsibility for any user's use of them.

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This disclaimer of liability applies to any damages or injury, including but not limited to those caused by any failure of performance, error, omission, interruption, deletion, defect or under any cause of action.

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The members of NGA's Fabricating Committee encourage users of this manual to review all plans and specifications before

selecting a specific laminated architectural glazing product. The users of this manual should consider the potential safety hazards for each glass application. The appropriate type of glass should be specified in view of the perceived foreseeable risks of injury. Mere compliance with the applicable safety regulations, federal, state, and local may not be sufficient to avoid liability in all circumstances. These safety regulations represent only minimum standards, specifications and requirements.

## **C. ABOUT NGA**

The National Glass Association (NGA) was founded in 1948. NGA combined with the Glass Association of North America (GANA) on February 1, 2018 to form the largest trade association serving the architectural glass and metals industry supply chain, including glazing contractors, full-service glass companies, glass fabricators, primary glass manufacturers and suppliers to the industry.

It is a technical powerhouse that brings some of the best minds to the table to create technical resources and promote and advocate for glass in buildings through its membership, its Forming, Fabricating and Installing committees and the Glazing Industry Code Committee (GICC).

NGA's education and training programs—both online at MyGlassClass.com and in-person at association-sponsored events—and its official publication Glass Magazine, keep the industry knowledgeable and well-informed.

NGA produces the industry's largest annual trade show in the Americas, GlassBuild America. It hosts the Building Envelope Contractors (BEC) Conference, the Glazing Executives Forum, as well as Annual and Fall Conferences. These educational and networking events bring together thousands of industry professionals to help them build more profitable businesses.