

Laminated Glass Use in Furniture

Introduction

Glass is often used to enhance the beauty and style of furniture. In cabinets and shelving, it affords a view of displayed objects, such as china and collectables. When it is used as table top or base, it adds elegance and functionality. While glass is highly durable, it can break from accidental impact. Care should be taken to minimize potential glass-related injuries.

Types of Glass Used in Furniture Applications

The following glass types may be used in furniture applications:

Annealed Glass

Annealed glass in any thickness is not rated as safety glazing per ANSI Z97.1. When annealed glass breaks, shards may pose a risk of injury.

Tempered Glass

Tempered glass is approximately four times as strong as that of a similar thickness of annealed glass, and its break pattern after impact is considerably smaller than annealed glass, posing less of a risk of injury. Tempered glass can achieve safety glazing ratings per ANSI Z97.1.

Decorative Glass

Decorative glass is typically used for aesthetic enhancement, mainly through the use of color or texture.

- **Patterned Glass**
Patterned glass may be used for decorative glass applications in its annealed state and can be tempered or laminated to achieve safety glazing ratings per ANSI Z97.1.
- **Wired Glass**
Decorative wired glass offers half the strength of annealed glass and can be laminated to achieve safety glazing ratings per ANSI Z97.1.

Laminated Glass

Laminated glass offers fragment containment after breakage. Laminated glass can use annealed, heat-strengthened, tempered, patterned, wired or other types of glass in the laminate configuration. Typically, two glass lites are held together by an interlayer that provides impact resistance and glass shard containment after breakage occurs. Laminated glass can achieve safety glazing ratings per ANSI Z97.1.

Glass Standards

ASTM F2813 *Specification for Glass Used as a Horizontal Surface in Desks and Tables* addresses the use of safety glass in unenclosed horizontal surfaces under 44 in. (1118 mm) in height, specifically desks and dining, coffee, end, display, mobile, outdoor, and other types of tables. The standard states that glass shall be tempered or laminated glass complying with ANSI Z97.1. The ANSI Z97.1 standard presents safety performance specifications and testing methods. While it does not directly address furniture applications, it does focus on safety glazing as a means of reducing glass-related injuries.

ANSI Z97.1 Safety Glazing Standard

While the ANSI Z97.1 standard does not specifically address furniture applications, it does address the use of safety glazing as a means to reduce glass-related injuries.

Design Considerations

The choice of glass used in furniture and shelving depends on several factors:

Aesthetics

Glass can provide transparency, translucency, color, and even decoration.

Size and Location of Glass

The size and location of the glass in the furniture will influence the type of glass selected.

In-fill vs. Load-bearing

The use of glass as an in-fill material is different than glass that is required to provide load-bearing properties. Proper design and engineering of the glass is necessary for load-bearing capabilities.

Breakage

Annealed glass breaks in sharp shards. Tempered glass breaks in small pieces that reduce the potential for cutting and piercing injuries. Laminated glass provides containment of the glass shards after breakage.

Exposed Edge

The exposed edge of glass in furniture applications is subject to impact and environmental conditions. All edges should be fabricated to eliminate potential injury. This can be done with a polished edge or other type of edge work. Glass with exposed edges may be susceptible to impact as well as potential reactions from standing liquids or repetitive use of cleaning materials. It is best to minimize the contact between liquids and the edges of laminated glass. Check with the manufacturer for compatibility information.

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