Glass Visual Characteristics and Tolerances

(CAN-CGSB-12.1–Aligned)

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1. Tempered Glass – Visual Characteristics and Tolerances

1.1 Cutting Tolerances

Tempered Glass Thickness	Cutting Tolerance
3 mm – 6 mm	± 1.0 mm (± 1/16″)
8 mm	± 2.0 mm (± 5/64″)
10 mm	± 2.5 mm (± 3/32″)
12 mm	± 3.2 mm (± 1/8″)
15 mm	± 4.0 mm (± 5/32″)
19 mm	± 4.8 mm (± 3/16″)

1.2 Visual Evaluation and Tolerances

Quench marks, anisotropy, roller wave, and minor optical distortion are inherent to the tempering process and shall not be considered defects when the glass is viewed under normal viewing conditions, from a customary viewing distance, and without deliberate inspection, in accordance with CAN-CGSB-12.1 principles.

Visual characteristics of tempered glass and tempered insulated glass units shall be evaluated as follows:

- **Up to 3 mm** outside the **Normal Field of Vision (NFV)**

- **± 2 mm** within the **Normal Field of Vision (NFV)**

Evaluation Conditions

Evaluation shall be conducted:

- Under normal lighting conditions
- At customary viewing distances
- Without deliberate or close inspection

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2. Insulated Glass Units (IG / Thermos) – Visual Characteristics and Tolerances

2.1 Overall Unit Dimensions

The dimensional tolerances for finished insulated glass units (IGUs) shall be as follows:

- **± 1.5 mm (± 0.06 in.)** for **double-pane** units
- **± 2.3 mm (± 0.09 in.)** for **triple-pane** units

These tolerances apply to the **overall outside dimensions** of the sealed unit and include normal manufacturing variations.

2.2 Visual Quality of Insulated Glass Units

Insulated glass units shall be evaluated for visual quality in accordance with CAN-CGSB-12.1 principles and shall be assessed **only within the Normal Field of Vision (NFV)**.

Visual characteristics located outside the NFV or concealed by framing or adjacent construction shall not constitute defects.

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3. Laminated Glass – Visual Characteristics and Tolerances

Laminated glass may exhibit visual characteristics inherent to the lamination process. These may include minor interlayer waviness, slight edge visibility of the interlayer, small air bubbles or inclusions, and minor optical distortion.

Such characteristics are normal and shall not be considered defects when the glass is viewed under normal viewing conditions, from a customary viewing distance, and without deliberate or close inspection.

3.1 Tolerances

- **Interlayer alignment:**
  Minor ply misalignment is acceptable up to **± 1/8 in. (3.2 mm)**

- **Air bubbles and inclusions:**
  Air bubbles or inclusions located **outside the Normal Field of Vision (NFV)** are acceptable up to **± 2 mm**

Visual evaluation is limited to the **Normal Field of Vision (NFV)**. Characteristics located outside the Normal Field of Vision, near edges, or concealed by framing, hardware, or adjacent construction are considered acceptable.

3.2 Normal Field of Vision (NFV)

The **Normal Field of Vision** is the area of glass visible under normal viewing conditions when observed from a customary viewing distance and normal eye level, without deliberate or close inspection.

The Normal Field of Vision excludes:

- Areas near the edges of the glass

- Areas concealed by framing, clamps, posts, or other hardware

- Areas viewed at extreme angles or under non-standard lighting conditions