

Glass Inspection for the Homeowner

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Glass Inspection for the Homeowner



The glass industry has developed consensus standards/specifications ([/pages/glass-standards-and-guidelines](#)) that address quality aspects of various types of glass used in windows, doors and skylights. These standards are very comprehensive and typically written for manufacturers who have expertise in applying them. The standards are also very specific to a given glass type. These types include raw flat (annealed) glass, heat-treated glass (ex. tempered), coated glass (ex. Low-E),

laminated glass and IGUs (/pages/understanding-glass-standards). Unfortunately, the methods of inspection and the blemish or issue criteria are not always the same for each type of glass.

In most cases, a homeowner will have a window, door or skylight that contains an IGU that is comprised of two or more panes of flat glass. Typically, this glass will also have some type of Low-E coating. If there is a safety concern or a code requirement for safety glazing, the window may also contain tempered or laminated glass. With a combination of all these glass types in one window, door or skylight, sorting out the appropriate criteria to the respective standard is at best a complicated, if not confusing, endeavor. How then is a homeowner to know whether an issue or blemish is a legitimate concern?

The following is a general guideline offered to simplify the inspection of glass issues for the homeowner. This is not necessarily a definitive guide covering all glass related concerns; that's the job of the industry standards (/pages/glass-standards-and-guidelines). Rather, this guideline is a check for a homeowner to flag whether an issue merits consideration for replacement.

Home Inspection Directions

1. Thoroughly clean (/pages/brochures#care) the glass on both sides with glass cleaner.
2. Stand 10 feet away, directly in front of the glass (90° to the surface).
3. The glass should be illuminated with daylight, but not direct sun.
4. If an issue or blemish is readily apparent, measure the size of the blemish.
5. Contact the manufacturer if the blemish is noticeable and is outside the following limits.

Blemishes

	Maximum Size (if readily seen at 10 ft.)	Separation (between blemishes)
Point blemishes (dirt, debris, residue, pinhole, spot, finger print, etc.)	1/16"	24" min.
Linear blemishes (scratches, rubs, marks, etc.)	3"	24" min.
Glass chip	1/4" x 1/2"	1 per pane

Other Issues

	Definition	Comments
Bow	Deviation in flatness spanning the entire pane of glass. Commonly seen in tempered glass and IGUs.	Not measurable on site or in an IGU. Positive and deflection is a natural occurrence with seasonal and barometric pressure cycling.
Distortion	Localized deviation in flatness that can look like ripples across the glass, or pockets of indentations.	Allowed and very common in tempered glass. Not measurable on site or in an IGU.
Strain pattern	An optical effect that results from the tempering process appearing as a pattern of dark spots on the glass. The intensity of the issue increases when viewed at steep angles to the glass and with polarized sun glasses.	Allowed. This optical issue is characteristic of tempered glass and cannot be completely controlled. It will vary from pane to pane.
Fringes	An optical effect that appears as a faint, random, pattern resembling an oil stain.	Allowed. This is the result of having exactly matched thickness of glass panes in an IGU (less than 0.0001" difference in thickness).
Newton rings	This is an optical issue that appears as concentric rings of rainbow colors near the center of an IGU that has its panes touching each other.	There is no industry standard covering this issue. Contact the manufacturer.
Color uniformity	Readily apparent glass color variation from window to window, or within a window. It can be the result of the glass tint or glass coating.	Allowed within reason. Can be measured with special instrumentation if needed. Consult with manufacturer.

Suction cup marks and label residue	Telltale impressions on the glass where a suction cup or label was applied.	Allowed if on the outdoor or indoor surfaces of an IGU, and seen only when the glass is wet with rain or condensation. Not allowed if the marks are inside the IGU and noticeable at 10 feet or less.
Fogging	A moisture or chemical deposit between the panes of an IGU.	Not allowed. Indicates seals have failed or outgassing of materials has occurred.
Sightline infringement	An extension into the daylight opening of an IGU by the sealant, spacer, or area of coating deletion.	1/8" maximum



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