

Inspection Standards

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LowE Coating Quality: Glass products used by Fast Windows and More, Inc. conform to the following ASTM standards

- ASTM 1036-06 (Standard Specification for Flat Glass) Q3/Glazing Select specifications or better
- ASTM C1048-04 (Standard Specification for Heat-Treated Flat Glass)
- ASTM C 1376-03 (Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Float Glass) Kind CV specifications or better

Low-E Coating Quality

Glass products used by Fast Windows and More, Inc. conform to the ASTM C1036 (Standard Specification for Flat Glass) Q3/Glazing Select specifications or better, ASTM C1048 (Standard Specification for Heat Treated Flat Glass – Kind HS, Kind FT Coated and Uncoated Glass) specifications using Q3 quality or better, ASTM C1379 (Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Glass) Kind CV specifications or better.

Low-e coated glass may exhibit a hue or coloration that is not apparent in architectural samples, especially in shaded or darkened light or when viewed at a glancing angle. This coloration is inherent to the coating process and is not a reason for rejection.

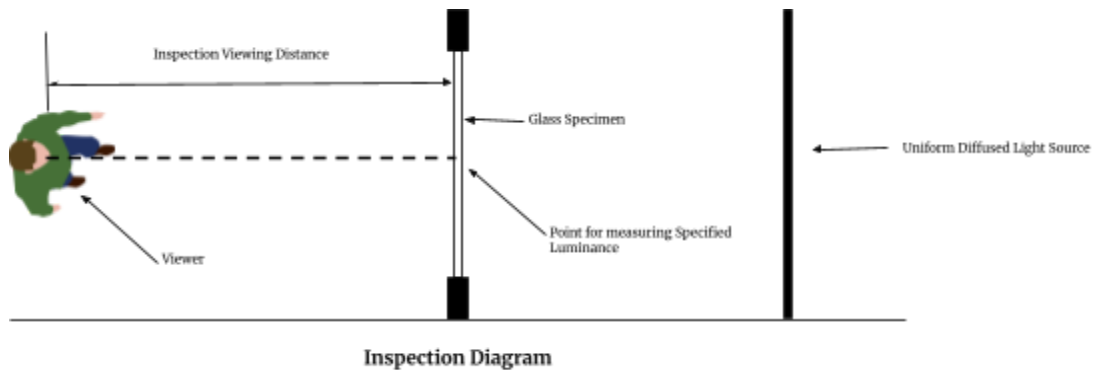
Visual Inspection Criteria

All inspections shall be performed in transmission and reflection at a distance of 10 feet from the observer. The inspector shall utilize a viewing angle of 90 degrees from the glass, with a suitable background light (daylight without direct sunlight or range of 500 to 1000 foot lamberts). If a lighting box is used as the light source, the diffusing plate shall be parallel to and at a distance of 10 feet from the glass. The inspector shall look through the glass rather than at the surface of the glass. Inspection shall not exceed viewing of more than 5 seconds for lites up to 60 sq. ft., 10 seconds for lites up to 35 st. ft., anything more than 35 sq. ft. shall have an inspection time of 20 seconds. If defects are visible beyond the allowable as mentioned below using the criteria, the glass may be rejected.

Inspection shall be made with 20/20 vision (naked eye or corrected).

Visual Inspection Diagram

Figure 1: Inspection Diagram



Allowable Defects

1. Single lites up to 6 sq. ft.
 - a. Scratches: Viewable as stated above, must be 1" or less. No more than 1 is allowed per lite
 - b. Debris, Dirt, Spots: Viewable as stated above, must be 1/16" or less. No more than 1 is allowed per lite.
 - c. Seeds, Bubbles, Knots, Stones: Viewable as stated above, must be 1/16" or less. No more than 1 is allowed per lite.
 - d. No more than one total viewable defect as described above is allowed per lite.
 - e. Shells: No more than 1/4" from edge less than 1/2 the thickness of the lite. No more than one per side.
 - f. Chips: No more than 1/8" from edge. No more than one per side.
 - g. Coating: Must be uniform on the lite inspected, when viewed in transmission using the inspection criteria previously stated above.
 - h. The border area is comprised of 2" plus 1/2" from each edge of the lite. All other area is the central area.
2. Single lites for 6 sq. ft to 35 sq. ft.
 - a. Scratches: Viewable as stated above, must be 1" or less. No more than 2 is allowed per lite and must be separated by a minimum distance of 24".
 - b. Debris, Dirt, Spots: Viewable as stated above, must be 1/16" or less. No more than 2 is allowed per lite and must be separated by a minimum distance of 24".
 - c. Seeds, Bubbles, Knots, Stones: Viewable as stated above, must be 1/16" or less. No more than 2 is allowed per lite and must be separated by a minimum distance of 24".
 - d. No more than 2 total viewable defects as described above is allowed per lite.

- e. Shells: No more than ¼” from edge less than ½ the thickness of the lite. No more than one per side.
 - f. Chips: No more than 1/8” from edge. No more than one per side.
 - g. Coating: Must be uniform on the lite inspected, when viewed in transmission using the inspection criteria previously stated above.
 - h. The border area is comprised of 4” plus ½” from each edge of the lite. All other area is the central area.
3. Single lites over 35 sq. ft.
- a. Scratches: Viewable as stated above, must be 1” or less. No more than 3 is allowed per lite and must be separated by a minimum distance of 24”.
 - b. Debris, Dirt, Spots: Viewable as stated above, must be 1/16” or less. No more than 3 is allowed per lite and must be separated by a minimum distance of 24”.
 - c. Seeds, Bubbles, Knots, Stones: Viewable as stated above, must be 1/16” or less. No more than 3 is allowed per lite and must be separated by a minimum distance of 24”.
 - d. No more than 3 total viewable defects as described above is allowed per lite.
 - e. Shells: No more than ¼” from edge less than ½ the thickness of the lite. No more than one per side.
 - f. Chips: No more than 1/8” from edge. No more than one per side.
 - g. Coating: Must be uniform on the lite inspected, when viewed in transmission using the inspection criteria previously stated above.
 - h. The border area is comprised of 6” plus ½” from each edge of the lite. All other area is the central area.

Scratches and Rubs

The inspection starts with the inspector standing 120 inches away from the glass. From there, the inspector slowly moves closer until they can see a scratch or rub. If the mark is visible from the full 120-inch distance, is longer than 3 inches, and is located in the central viewing area (which is the middle 80% of both the height and width of the glass), then the glass should be rejected.

Allowable Defects for Grids

If present, grids shall be inspected visually from 3 feet for imperfections during glass inspection. If the imperfections are noticeable at the 3 feet mark, the inspector shall step forward to validate the identified imperfections that exceed the criteria in Table 1.1 and Table 1.2 below. If the imperfections exceed the criteria listed in the table, the unit shall be rejected.

Figure 2: Grid Characteristics Examples

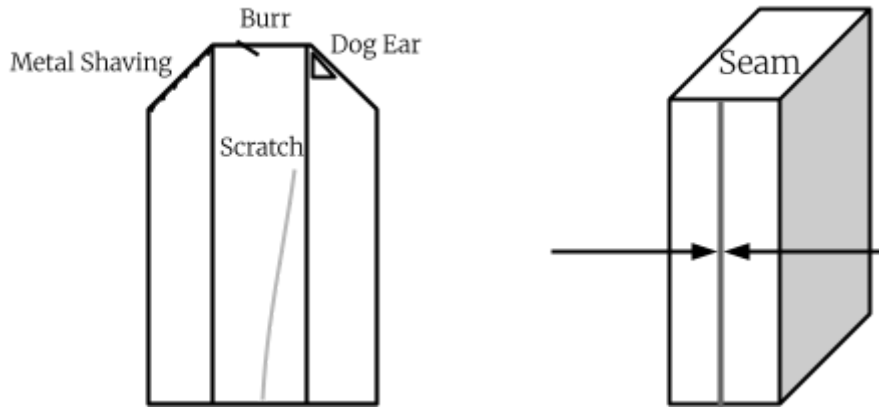


Table 1.1: Interior Surface Grid Visual Quality Requirements

Characteristic	Reject Criteria
Burrs / Shavings	>1/32"
Fold-Overs / Dog Ears	>1/32"
Paint Chips / Marks / Spots	>1/32"
Dent / Crease	>1/8"
Scratches (Length)	>1/4"
Smudges / Fingerprints	>1/4"
Grid Gap at Spacer inside of Sightline	>1/8"
Spacer Seam / Grid Gap at Mitered Corner	>1/16"

Table 1.2: Exterior Surface Grid Visual Quality Requirements

Characteristic	Reject Criteria
Burrs / Shavings	>1/16"
Fold-Overs / Dog Ears	>1/16"
Paint Chips / Marks / Spots	>1/16"
Dent / Crease	>1/8"
Scratches (Length)	>1/4"
Smudges / Fingerprints	>1/4"
Grid Gap at Spacer inside of Sightline	>1/8"
Spacer Seam / Grid Gap at Mitered Corner (See Figure 6.2.2)	>1/16"