HAWKEYE®
WINDOWS & DOORS
AN EYE FOR EXCELLENCE

ASTM GLASS STANDARD C1036

For design professionals, contractors and clients

HAWKEYE®
WINDOWS & DOORS
AN EYE FOR EXCELLENCE

"It's much more difficult to explain expectations around industry standards once the client has already seen the glass… and decided it is not acceptable to their personal expectations."

Glass was manufactured not be looked at but looked through. And because of the manufacturing process, glass will have imperfections that can be found by anyone if they look closely enough and long enough. Therefore, the glass industry standards are set by ASTM International and cover a variety of glass issues that may not always align with client's expectations. We understand in architecture and construction, expectations are high. However we also know the larger the piece of glass, the less perfect it is allowed to be.

The abbreviated answer to "What is a defect?"

1. *Stand back 10 feet from the glass*
2. *Face the glass straight-on at 90°*
3. *View during the day but not in direct sunlight*
4. *View the central 80% section of the glass*

Under these conditions, the ASTM standard is that if you can not see an issue from 10 feet, it is not a defect by industry standards.

ASTM's Official Standards for Imperfections in Glass

The official ASTM version is quite long and can be complicated to read. This document intends to make a brief summary of some key parts of the ASTM standard. However, keep in mind there are varying types of defects and each with different inspection rules. The 10 ft. rule is a good basis for educating the client that glass standards do exist. Nevertheless, as with most things, the 10 ft. rule isn't definitive. For example, on sealed units over 35 square feet, the glass is allowed to have three 1" scratches and still be within standards – even if those scratches are visible from 10 ft.

Ninety percent of ASTM conversations never have to happen. If the client knows the short version of the inspection process, and if discussed in the early stages, there is largely reduced risk of issues.

It is much more difficult to explain expectations around industry standards once the client has already seen the glass and decided it is not acceptable to their personal expectations because it has been transformed into an emotional issue.

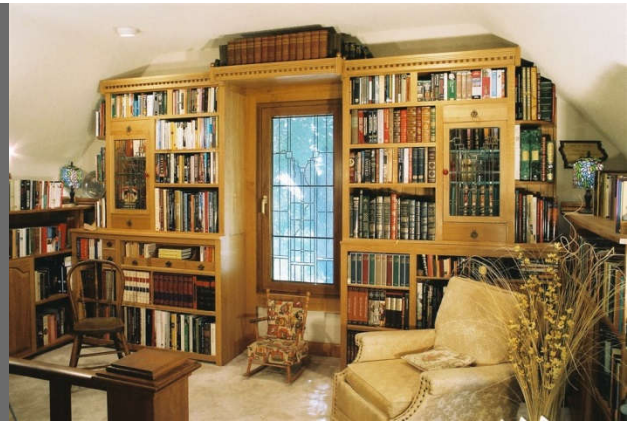
HAWKEYE®
WINDOWS & DOORS
AN EYE FOR EXCELLENCE

Understanding the ASTM's Official Standards

ASTM is the underlying basis for understanding glass quality, allowable defects, and visual conditions. ASTM also has several types of specifications depending on the glass types being evaluated. Some examples of quality criteria are:

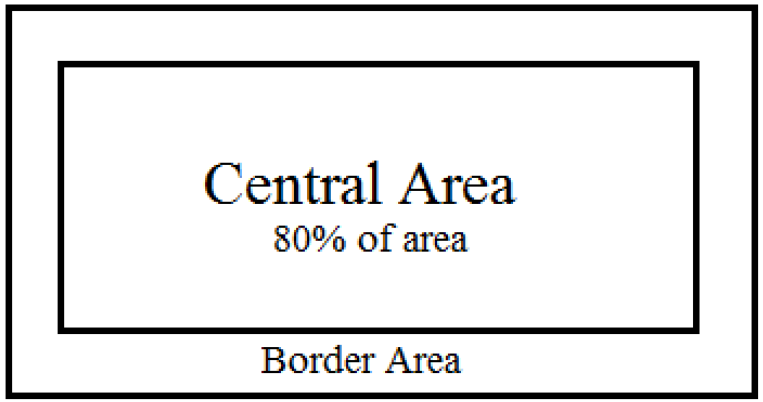
1. ASTM C1036 (Visual Field Evaluation for Flat Glass)
2. ASTM C1048 (Heat-Strengthened and Fully Tempered Flat Glass)
3. ASTM C1172 (Laminated Architectural Flat Glass)
4. ASTM C1376 (Low-e Coatings on Flat Glass)
5. ASTM C1651 (Roll Wave Optical Distortion for Heat Treated Glass)

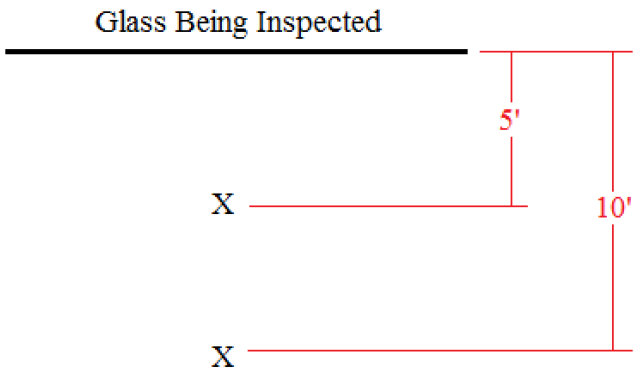
The ASTM inspection criteria also includes such things such as distance, lighting and time.



Visual Inspection Criteria

1. Glass shall be inspected in the **central area** in at a distance of 5 feet from the observer
2. Glass shall be inspected in the **border area** at a distance of 10 ft. from the observer.
3. Glass must be inspected at an angle of 90 degrees from the glass in daylight but without direct sunlight.
4. Inspection time not to exceed viewing of more than 5 seconds for lites up to 6 sq. ft., 10 seconds for lites up to 35 sq. ft., and 20 seconds for lites larger than 35 sq. ft.
5. If defects are visible beyond what is allowable as listed by sizes (in sq. ft.) using the inspection criteria, the glass may be rejected.





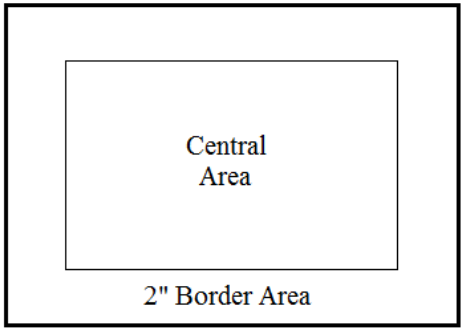
Allowable Defects

Defect	Allowance	Mas Allowed for up to 6 sq ft	Mas Allowed for 6-35 sq ft	Mas Allowed for over 35 sq ft
Scratches	Size 1" or less	1	2	3
Debris, Dirt, Spots	Size 1/16" or less	1	2	3
Seeds, Bubbles, Knots, Stones	Size 1/16" or less	1	2	3
Shells	Located no more than 1/4” from the edge and less than 1/2 the thickness of the lite	1 per side	1 per side	1 per side
Chips	Located no more than 1/4” from the edge	1 per side	1 per side	1 per side

HAWKEYE®
WINDOWS & DOORS
AN EYE FOR EXCELLENCE

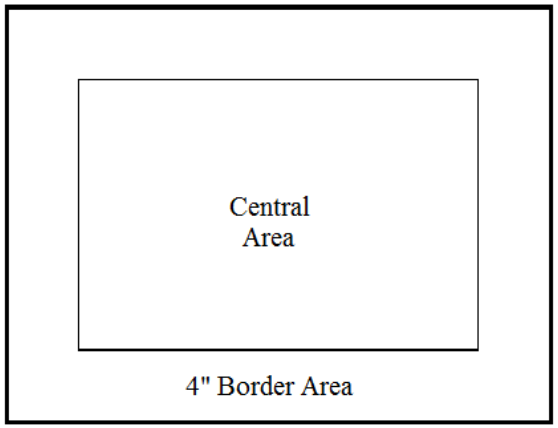
Visual Aids

Viewable lites up to 6 sq ft



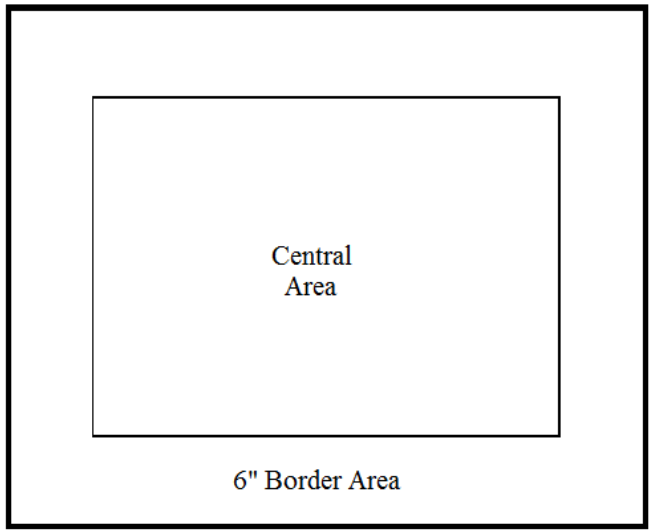
Only one defect allowed

Viewable lites 6 to 35 sq ft



Only two defects allowed

Viewable lites over 35 sq ft



Only three defect allowed

HAWKEYE®
WINDOWS & DOORS
AN EYE FOR EXCELLENCE

800-701-3220