NSG GROUP

Technical Bulletin

ATS-114
2013-01-14

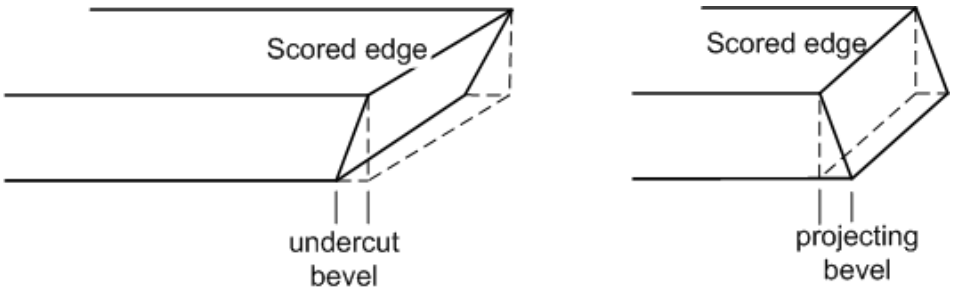
BUTT JOINT GLAZING EDGEWORK REQUIREMENTS

Butt joint glazing applications typically involve the use of 3/8" and thicker float glass in applications where the glass is retained at the head and sill with no support on the vertical edges. The vertical butt joints between the lites of glass are typically filled with a silicone sealant for a weather seal. Edgework requirements for butt joint glazing applications may be critical from an aesthetic standpoint due to the exposed glass edges.

Many glazing contractors have chosen to use annealed cut size float glass supplied with a factory clean cut edge for such applications. Depending on the glass shape, size and thickness, a factory clean cut edge may not meet the aesthetic expectations of the architect.

When evaluating the use of annealed glass with clean cut edges for butt joint glazing applications, the designer should be aware that there will be a variation in edge quality based on the size, shape and thickness of the glass. These variations will not affect the dimensional tolerance of the glass. Cut size glass supplied by Pilkington North America, Inc. will meet the dimensional tolerances as specified in the ASTM C 1036 Standard Specification for Flat Glass. Important considerations in edge quality are such items as:

1. **Bevel and Flare** - This is a variation of the cut edge from true squareness with the glass surfaces shown below. Generally, the flare or bevel will be more severe the thicker the glass.



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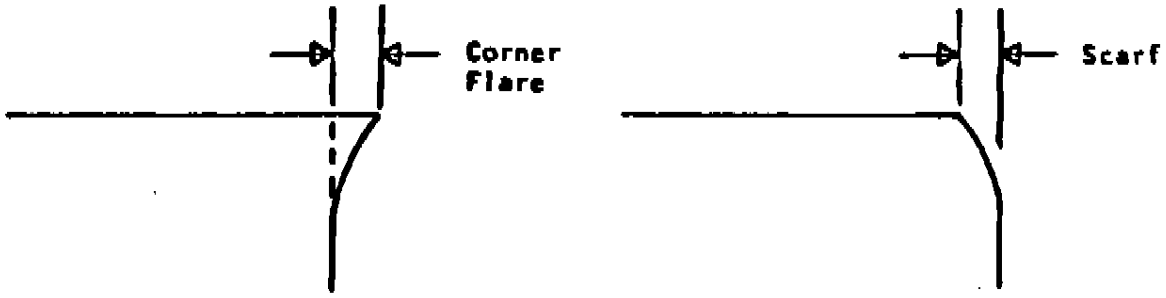
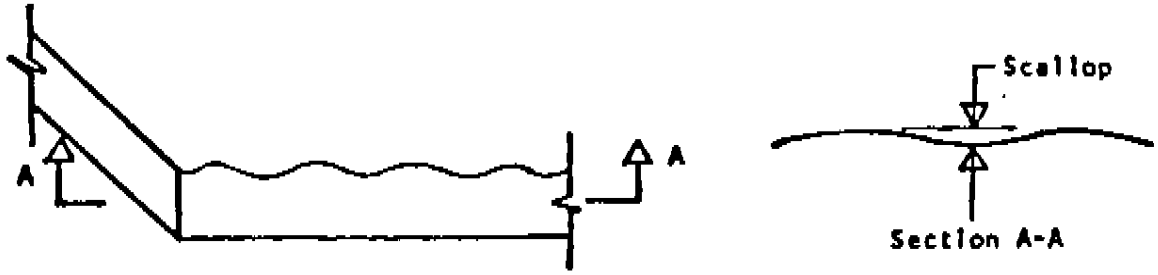
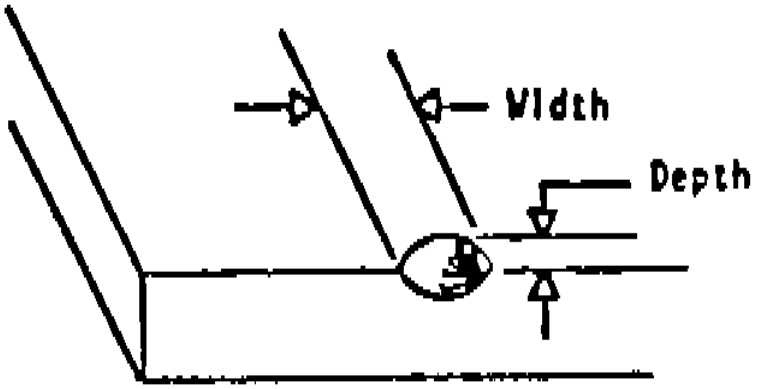
2. **Corner Flare or Scarf** - This is a variation of the glass edge from a straight line at a corner as shown below. This may vary with size and thickness of glass but, in general, will be more pronounced as glass thickness increases.



3. **Scallop** - This is an undulation or convolution in the cut edge occurring in the center portion of the edge. The amount of scallop will be more pronounced with increased glass thickness and/or increased length of edge.



4. **Shell or Flake Chip** - This is a chip at a glass edge, usually smooth, having the appearance of a shell. Flake chips are generally more pronounced as glass thickness increases.



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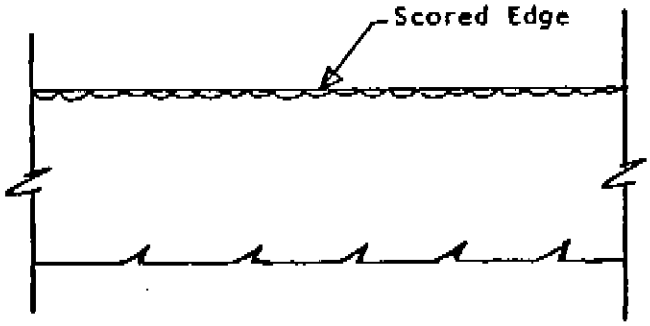
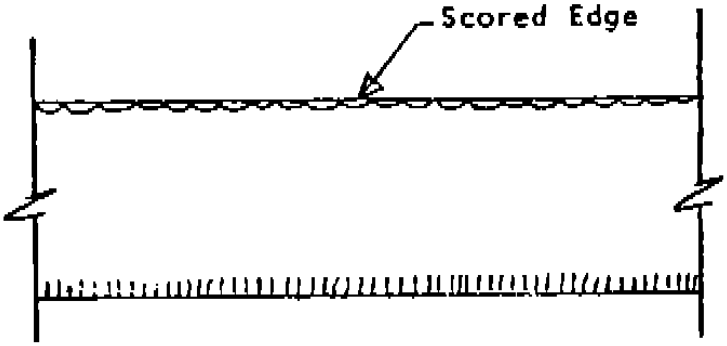
5. **Saw tooth** - A series of V-shaped notches into the edge having a saw-tooth appearance.

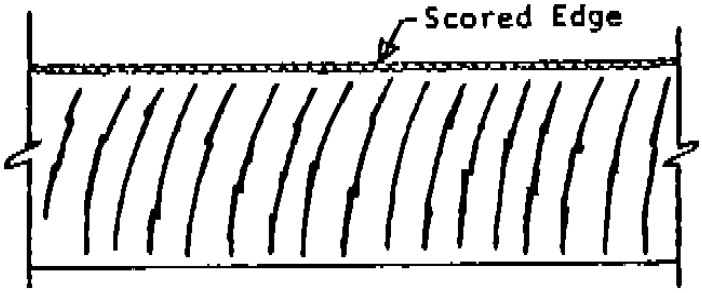


6. **Striations**

a. **Whisker** - Dagger-like imperfections starting at the glass surface opposite the scored edge which are usually normal to the surface as shown below:



b. **Feather or Fishbone** - A group of dagger-like cracks that form in a slightly curved manner across the face of the glass as shown below:



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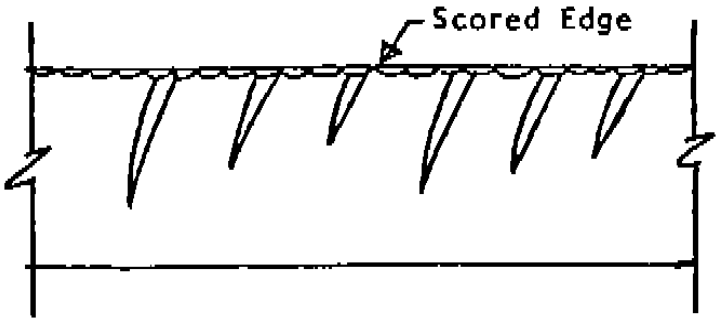
c. **Shark Teeth** - Dagger-like cracks starting at the scored edge and usually wide at the glass surface and pointed at some distance away from the surface as shown below:



Considering the possible variations in edge quality for factory clean cut edges, the following recommendations apply to butt joint glazing applications:

1. 3/8" glass is acceptable for use with factory clean cut edges.
2. 1/2" glass up to a maximum length of 100" on the butt joint edge can be used with factory clean cut edges.
3. 1/2" glass over 100" in length and 5/8" and thicker glass in any length should not be used with a factory clean cut edge. Pilkington North America, Inc. recommends further fabrication of exposed butt joint glass edges.

Note:

But Joint glazing with sealed insulating glass (IG) units requires similar edge quality considerations but two other important characteristics need to be considered:

1. Exposing the IG seal to sunlight and UV will require weather resistant, tested, IG sealants with structural ability to hold the glass to the IG spacer under positive pressure changes to the sealed air space. Typical IG construction for these designs requires continuous spacers (bent or welded corners), PIB primary seal and a Silicone secondary seal.
2. Glass deflection under design load and consequent shear stress on the IG seal need to be evaluated to ensure adequate seal durability.

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