Capillary Tube

Introduction

Capillary tubes are used to equalize pressure differentials that are caused by extreme atmospheric pressure changes. These changes occur with changes in elevation, temperature, and every day variations in weather. Some of the effects in the IG that you may see from these pressure differentials are:

- Convexed: This is where an IG would be wider in the center than at perimeter. This is caused by the outside pressure being lower than that sealed in the IG. Outside pressure decreases with increased elevation.
- Concaved: This is where an IG would be narrower in the center than at the perimeter. This is caused by the outside pressure being greater than that sealed in the IG.

In extreme pressure differentials you may even encounter glass fracture, or a seal failure. Note that these effects are present in all sealed IG units, but only the extreme situations are of concern. Since temperature and climactic changes are wide variables that are impossible to control, and since the effects are tolerable, we typically do not focus on them.

Any change in elevation from the point of manufacture to the final installation site that equals more than a two thousand five hundred foot increase or decrease, will require a capillary tube. Any unit, during shipping, that would surpass a four thousand foot increase or decrease in elevation would require a capillary tube.

Final Installation Procedure

- Units will arrive at their final destination with the capillary tube taped to the glass (fig1). This tube needs to be properly sealed prior to final glazing.

Fig1

- First remove the glazing bead covering the capillary tube. For this example it is the top bead. This can easily be accomplished by lifting up one edge of the bead and pulling in the same plane as the glass
- To seal the Capillary Tube we recommend you first crimp the end closed using a “Lineman’s” type pliers, or any type of pliers that has flat parallel jaws, and has a high force at the jaw. You want to crimp 3/8” minimum, and crimp the tube straight on, not from the side (fig2).

Capillary Tube

Fig2

- After the Tube is sufficiently crimped, place a bead of Butyl, or silicone caulk in the gap between the I.G. and the glazing channel of the sash. Make this bead 1”to1.5” long, and place the bead in such a way that the end of the capillary tube will end up in the center of the caulk beads length (Fig3). Tuck the capillary tube into this same space alongside the IG, and embed the crimped end into the bead of caulk (fig4).

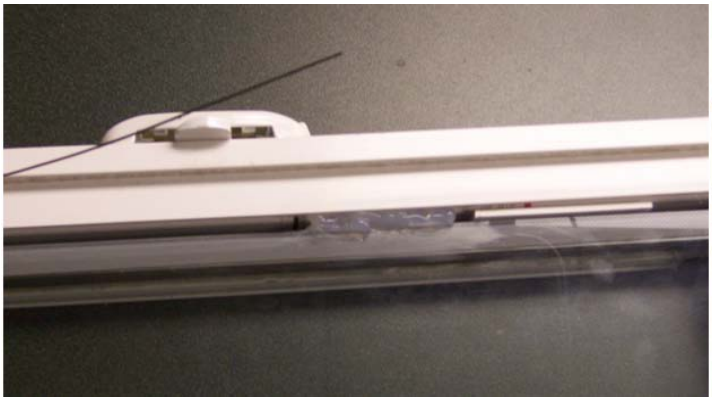

Fig 3

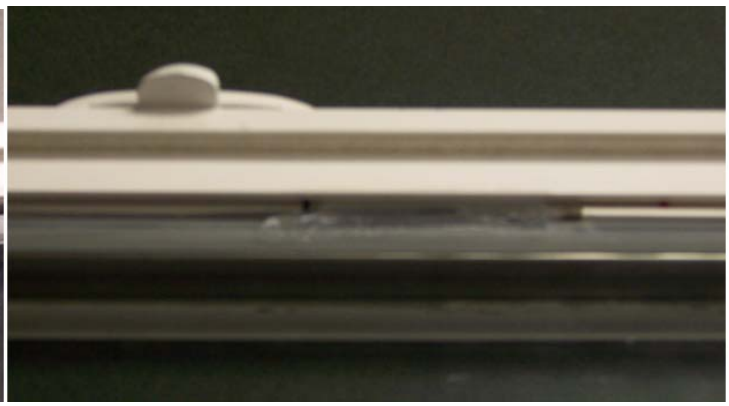

Fig 4

- Reinstall the glazing bead. You will need to insert the square end in under the adjacent mitered bead. It should snap in with moderate hand pressure. (Fig5)

Fig 5