Vitro America

Technical Bulletin
Rev. 1/1/07

Insulating Units and Breather Tubes

Insulating units that are to be installed at an elevation significantly higher or lower than where they were made, must have breather tubes. If breather tubes are not installed on units that are used at a different altitude, several different things can happen to the insulating units . . . all of them bad ! ! Air has less pressure at high altitudes than it does at sea level, and insulating units are sealed-air tight. Therefore, the air inside an insulating unit made at sea level will expand as the unit is moved up to higher altitudes. (Put a balloon in your car sometime and drive to up into the mountains . . . what happens?) Likewise, units made at high elevations and shipped to lower elevations will collapse in the middle.

The pressure in an insulating unit can become so great that the glass will break. If the glass does not break, it may mean that the seal has broken instead. Of course, then the unit will fog up within a matter of months. Or, if the glass and seal both stay intact, the unit will bow in the middle. A 1" insulating unit at sea level may be 1.5" to 2" wide at 5000 feet elevation, or a unit made at 5000 feet may collapse and the glass may rub in the center if the unit is shipped to sea level.

If insulating units are shipped through the mountains, breathers are still needed. Even if the insulating units are made and installed at low altitudes, they may be damaged in shipment if they don't have breather tubes. Glass breakage or seal failure may occur while the units are at high altitude. Or, the units may rub together in the case when they swell at high altitude. The rub will look like a white stain on the glass. Since these rubs usually occur near the geometric center of the unit, they are quite obvious and the unit will have to be replaced.

It is critical that any insulating unit made at sea level and installed at or shipped through altitudes over 3,000 feet be supplied with breather tubes. If units are manufactured at high elevations, they must have breather tubes so they can be shipped to either higher or lower altitudes. The breather tube must be left open until the insulating unit reaches the job site. At that location, the breather tube should be crimped and sealed before the unit is installed. Insulating units that are filled with Argon or Krypton gas cannot be equipped with breather tubes. The gas would leak out of the open breather tube within a matter of hours.

Recommended Method
for
Crimping Breather Tubes

Use a pair of pliers or side cutters to crimp the breather tube approximately 1 – 2 inches from the end. Be careful not to use excessive force and break the tube. Insert a good quality butyl sealant into the open end of the tube (use gunned butyl or a small ball of butyl tape). Crimp the breather tube at the end to enclose the butyl sealant. This should give you a high quality, dependable seal on the tube.

Allow the unit to sit for at least 24 hours at the job site before crimping the breather tube. This allows the air pressure to equalize before installing the unit. Always install insulating units so the breather tube is located at an upper corner. If the breather tube is damaged or ripped out, contact the Technical Services department at Vitro America for assistance.