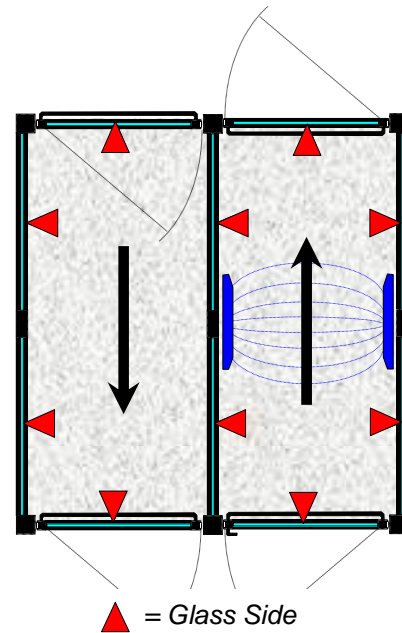
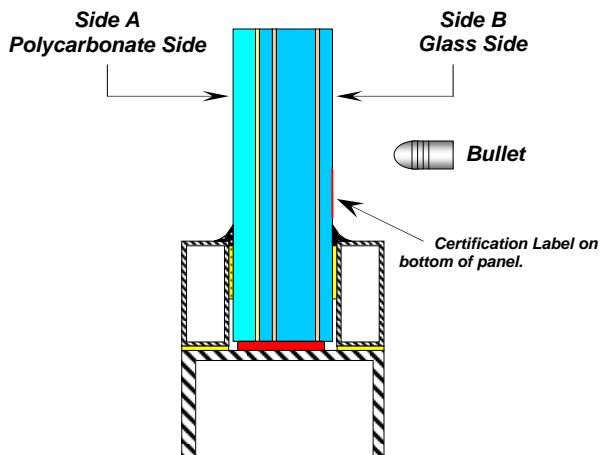


Introduction

Isotec, in a cooperative effort with the 3M Bonding Systems Laboratories in St Paul, Minnesota, created a process for installing laminated glass in all Isotec Weapons and Passage Control Systems. The use of 3M's Double Coated Acrylic Foam Tape has changed the way ballistic glass panels are installed. The installation process described below will provide a very secure method of installing ballistic material that exceed the specifications of many other manufactures sash systems. Based on the recommendation of 3M and the results of these tests and the following glazing installation data must be adhered to for maximum strength of all sash material provided with each system.

Isotec provides a variety of ballistic panels depending on the needs of the customer. Care must be taken to install UL listed material. This material is composed of a glass outer layer with a combination of glass and polycarbonate layers. If this material is installed correctly the glass side will always be facing towards any potential ballistic threat.

Every ballistic panel is etched with a certification from the manufacturer that meets the specifications as purchased. This certification is found in the lower corner of the glass. To the untrained installer it is sometimes unclear which side is the glass and which is the polycarbonate.

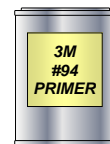


All Isotec Structures are shipped with the most of the 'A' Side sash installed. On some models, the bottom rail sash pieces are left off to allow anchoring.

Note: Installation of balanced glass products is not critical to orientation.

Step #1

Before installation of any glazing products, matting surfaces must be clean and dry. We recommend that a 70% Isopropyl Alcohol and 30% Water mix in a spray bottle be used to clean all surfaces where the VHB adhesive tape will be in contact. These same surfaces must be prepared with a 3M #94 primer. This primer will improve the bond strength of the powder-coated surfaces by 2 times.



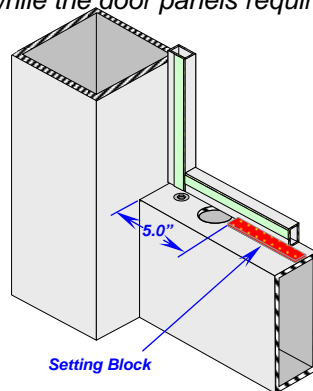
Step 2

Check all glass panels for excessive warp before installation. UL glass panels are allowed $\frac{1}{4}$ " bow over the entire surface. If the bow exceeds this dimension it can be very difficult to install. Installers have indicated they have been able to install glass with up to a $\frac{1}{2}$ " bow and not damage the glass.

Note: "The flatness of asymmetrical constructions of glass and polycarbonate laminated with polyvinyl butyral and aliphatic polyether urethane can be effected by changes in temperature. Materials stored in, or exposed to, cold temperatures can bow or warp beyond the flatness established at the time of manufacturing. Store materials in an ambient temperature for a period of time to allow the product to return to its original shape before installing."

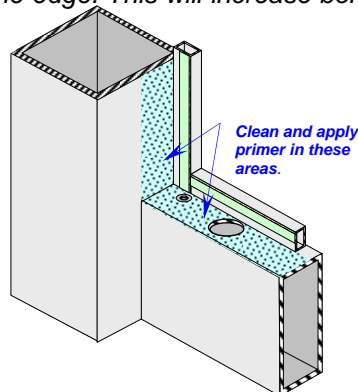
Step #3

The use of setting blocks, (provided with every system), is required in all Isotec glazing systems. Setting blocks provide a cushion between the glass panel and frame assembly during installation. The wall panels require three blocks each while the door panels require two.



Step #4

Using a lint free towel, clean the edges of the panel where the sash makes contact the edge of the panel. Then using a mix of 70/30 Isopropyl Alcohol and Water clean any dirt and oil from the edge. Allow a few minutes to dry then apply the Primer to the edge. This will increase bonding by 2X.

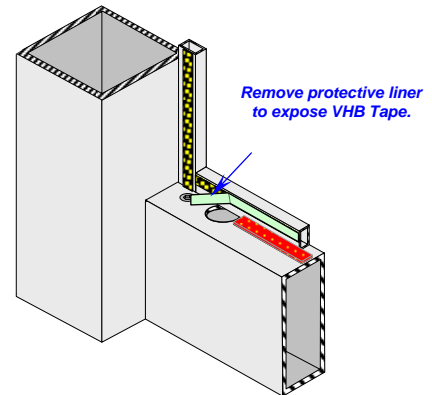


Step #5

Before installing the glass or polycarbonate panel, clean all dirt and oils from the surface. This allow for the maximum bonding strength of the tape. Clean the panel with Isopropyl Alcohol and Water mix and apply a #94 Primer to the side that mate with the factory mounted sash. Do not apply Primer on the opposite side.

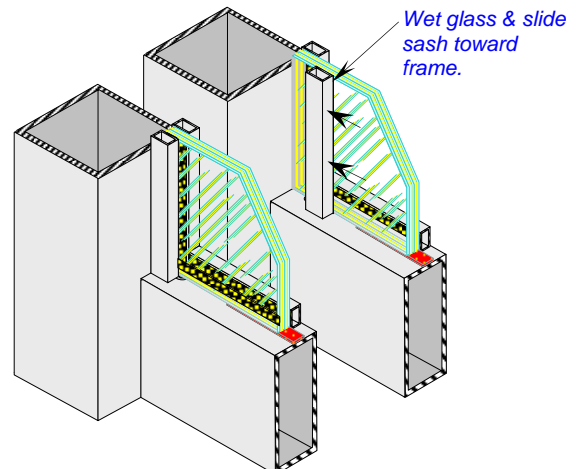
Step #6

Remove the protective liner from the bonding tape. Then lift the glass panel onto the sash blocks centering the panel in the opening



Before After the glass panel has been set into place, press evenly around the panel with approximately 15 psi pressure. If the panel has any warp, it may be necessary to use suction cups to pull the glass panel towards the sash.

Ideal tape application temperature range is 70-100 degree F. Minimum suggested application temperatures range is 60 degrees F.

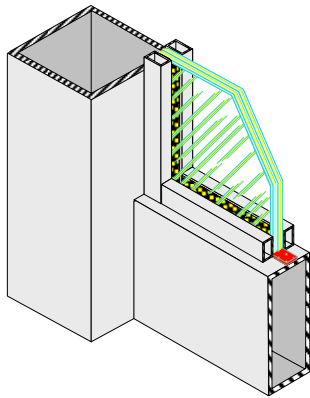


Step #7

Before installing test fit all sash pieces before removing the protective liner. Then remove the protective liner from the vertical sash pieces and press into place and press evenly with approximately 15 psi pressure. **Note: Wet the edge the panel with an alcohol and water mix to make installing the sash easier on all next steps.**

Step #8

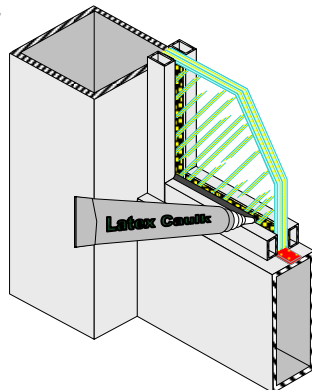
Remove the protective liner from the horizontal sash and center with vertical sash pieces. There should be a small gap between adjoining pieces to allow proper isolation of the structure. Again press with firm pressure to provide maximum contact.



Note: After application, the bond strength will increase as the adhesion flows onto the surface. Approximately 50% of the ultimate strength will be achieved after 20 minutes, 90% after 24 hours and 100% after 72 hours at room temperature.

Step #8

Apply a bead of latex caulk to seal the VHB tape from environmental separation and water intrusion. The color should match for a visually pleasing effect.



Door Glass Installation

Door Glass Panel installation is a very important step in the success of any system. Please read carefully the procedures listed below before attempting any installation of this material.

Although the strength of all Isotec doors exceeds those of most manufacturers, ballistic glass can be installed so as to warp or stress the frame.

Step #1

Assure that the door frame, while on the pivot, is square. Then, using a block and shims, support the door frame.

This process will assure that the frame is square while the glass and sash materials are installed.

Step #2

Refer to Step 1-8 above for installation of the glass and polycarbonate panels.