



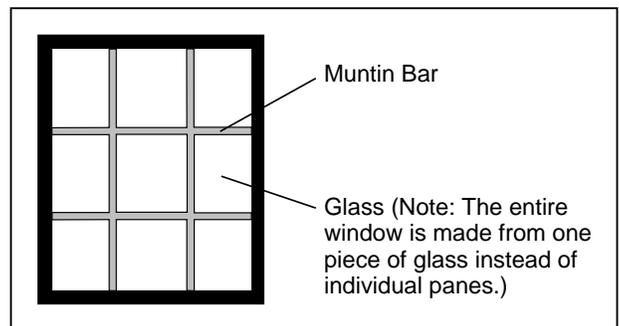
# VHB™ Tapes Bond Muntins to Glass in Window and Door Assembly

Technical Bulletin

August, 2006

## Background

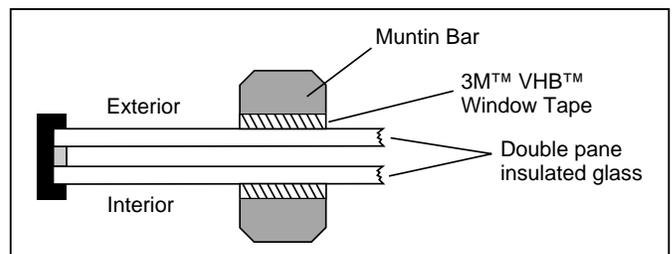
Architectural trends have created a need for conformable 3M™ VHB™ Window Tapes in the residential window and door industry. A trend toward windows with a georgian or colonial appearance has led companies within the industry to develop new, cost effective ways to manufacture windows and doors which have the appearance of “true divided light” without fabricating the window from separate insulated glass units. The grille assembly is made from individual muntin bars which make the window appear as though it is made of individual pieces of glass. (See Figure 1.) 3M™ VHB™ Window Tapes are being used to bond the muntin bars to the glass without the appearance of a facade or the noisy rattle of clipped on interior grilles.



**Figure 1:** Window made with muntin bars or grille to give the appearance of a window made with individual panes.

## Application Ideas

Since both the glass and the extruded or milled muntin profiles are not always extremely flat, the conformable 3M™ VHB™ Window Tapes can be used to easily wet out a surface. This enables the muntins to be bonded to the glass without the use of excessive pressure to squeeze out the trapped air pockets one would normally see when applying tape. (See Figure 2.) In addition, the softer acrylic foam has greater capacity to tolerate thermal expansion and contraction. Due to its ability to make more complete contact on irregular surfaces, conformable acrylic foam tapes may also provide a better seal for weather strip applications and to help prevent contaminants or moisture from accumulating in non-bonded areas. The conformable foam tapes come in a gray color which has been found to be desirable by many window companies from an aesthetic standpoint.



**Figure 2:** Muntin bar attached to glass using a 3M™ VHB™ Window Tape.

## Performance

The primary products for the user to consider in this application are 3M™ VHB™ Window Tapes G45P, G45F, B45P and B45F which are 0.045 inches in thickness and have a superior adhesive when bonding to coated surfaces such as painted aluminum or primed wood and have an inherent level of plasticizer resistance for a more durable bond on plasticized (flexible) vinyl.

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### Performance (continued)

The durability of these products has been evaluated in accelerated lab testing and actual outdoor weathering on window assemblies by independent firms and has been found to meet typical requirements of the window industry.

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### Application Considerations

All surfaces to be bonded must be clean, dry, and well unified. A typical cleaning solvent is an isopropyl alcohol/water mixture (rubbing alcohol).<sup>\*</sup> Do not use common glass cleaners that may leave a residue and reduce bond strength. For bonding to a hydrophilic (water-loving) surface such as glass we suggest using a silane coupling agent (glass adhesion promoter) for exterior applications which will encounter moisture or high levels of humidity. A separate technical service bulletin has been published for this subject (70-0702-9983-2). Many types of materials are used for muntins, from plastics to metals to wood. In any application where 3M™ VHB™ Window Tape is to be bonded to wood, the wood surface must first be sealed or primed with a coating such as a paint primer, sanding sealer, or varnish to provide a unified surface.<sup>\*</sup>

<sup>\*</sup>Carefully read and follow manufacturer's precautions and directions for use when using cleaning agents, silane treatments or primers.

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### Suggested Application Equipment

For information on automatic tape applicator systems call Straub Design Company at 952-546-6686 or via email at [www.straubdesign.com](http://www.straubdesign.com).

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### Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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### Limited Warranty

3M warrants for 24 months from the date of manufacture that 3M™ VHB™ Tape will be free of defects in material and manufacture. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. This limited warranty does not cover damage resulting from the use or inability to use 3M™ VHB™ Tape due to misuse, workmanship in application, or application or storage not in accordance with 3M recommended procedures.

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### Limitation of Remedies and Liability

If the 3M™ VHB™ Tape is proved to be defective within the warranty period stated above. THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M™ VHB™ TAPE. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including negligence, warranty, or strict liability.

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**ISO 9001:2000**

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.



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