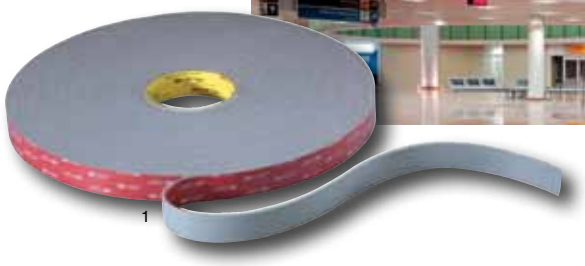
3M™ VHB™ Tapes

Design Guide for Structural Glazing & Architectural Panels



Outdoors, indoors,
and around the world

3M™ VHB™ Structural Glazing Tapes... success in thousands of buildings since 1990

Reliability guaranteed

- Up to 20-year warranty for qualifying applications
- Bonds with excellent dynamic strength to replace conventional wet glazing
- Resists environmental conditions such as UV, moisture, heat, and cold

Philips-Headquarters
Hamburg, Germany
Glazier: Bug-Alu Technic, 2006
3M™ VHB™ Structural
Glazing Tape G23F

Eye appeal from a distance and even up close

- Clean edge lines
- Tape bonds, seals and conforms to a variety of surfaces
- Color remains consistent from one end to the other
- No color change as seen between structural silicone and spacer tape/gasket

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Iguatemi Corporate
Porto Alegre, Brazil
Curtainwall Manufacture:
Esko Equadrias, 2006
3M™ VHB™ Structural
Glazing Tape 4972

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3M™ VHB™ Structural Glazing Tapes... immediate handling strength for increased productivity

Five Boats
Duisburg, Germany
Contract Glazier: Josef Gartner GmbH, 2006
3M™ VHB™ Structural Glazing Tape G23F

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Simplified application saving time and materials

- Speeds assembly and delivery
- Bonds on contact with no drying, fixturing, and liquid mess
- Saves the time, labor, and materials of spacer tape, gasketing, masking, and clean-up
- Eliminates the time and testing of 2-part systems for glass/butterfly, snap time, and mix ratio

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Mövenpick Hotel
Frankfurt, Germany
Architect: ABB Architekten Frankfurt, 2006
3M™ VHB™ Structural Glazing Tape G23F

Dock del Plata
Ciudad de Buenos Aires, Argentina, 1994
3M™ VHB™ Structural Glazing Tape

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Maceio Airport
Maceio, Brazil
Curtainwall Manufacture: Portico Esquadrias Ltda e Tecmount Produtos Metalicos Especiais, 2006
Architect: Traco Planejamento e Arquitetura
3M™ VHB™ Structural Glazing Tape 4972

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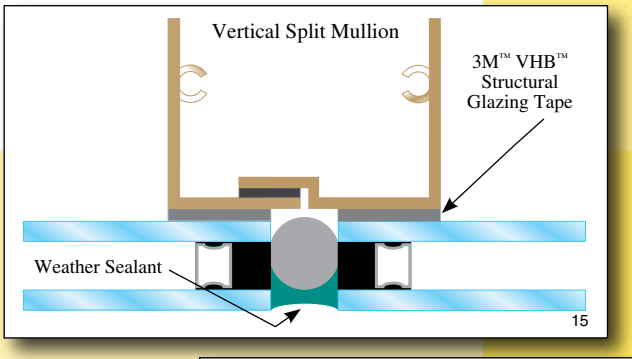

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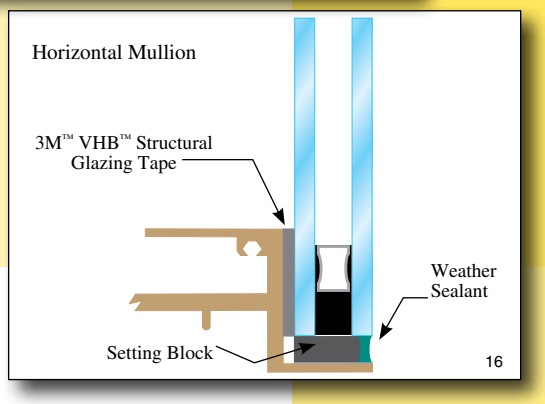

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Contraloria General de Cuentas
Guatemala, Guatemala, 2006
Curtain Wall Manufacture/Glazier: Aluminios Aldana
3M™ VHB™ Structural Glazing Tape 4972

3M™ VHB™ Structural Glazing Tapes... going up against the elements worldwide

The power of viscoelasticity

- Absorbs shock and allows movement for reliability against wind and vibration
- Compensates for thermal expansion/contraction

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Athenee Tower
Bangkok, Thailand
Architect: A49
Glazier: Alumeyer Limited, 2006
Curtainwall: Hydro
Hybrid Structurally Glazed System
3M™ VHB™ Structural
Glazing Tape G23F

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Conformability

- Bonds to a variety of surfaces to simultaneously bond and seal

Robosoft Technologies Pvt. Ltd.
Udupi, India, 2006
Architectural panel bonding
with 3M™ VHB™ Tape
Structural Glazing
with 3M™ VHB™ Structural
Glazing Tape G23F

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Poort van Veghel Building
Veghel, Netherlands
Glazier: Lealti, 2006
2-Sided Structurally Glazed Stairwell
3M™ VHB™ Structural
Glazing Tape G23F

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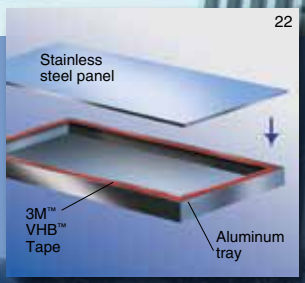
3M™ VHB™ Tapes for Architectural Metal Panels...

proven for more than 25 years worldwide



BankBoston,
Sao Paulo, Brazil
Architect: Skidmore, Owings & Merrill and Julio Neves partnership, 2002
Stainless steel panels bonded to aluminum tray frame.

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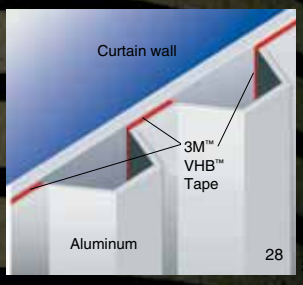
Withstands wind, heat, cold, sway, and vibration

- Bond with high holding strength to replace screws, rivets, welds, and silicones for static and dynamic loads
- Elastic properties absorb shock and flexing for reliability against wind, vibration, and thermal expansion/contraction
- Fill irregularities and gaps between surfaces to help keep out dirt, water, and cleaning chemicals

Shaffner Building,
St. Joseph, MI, USA
Architect: Shaffner and Associates, 1986
Aluminum composite panels
bonded to aluminum framework.

Private Residence by Qbes
Skanderborg, Denmark, 2007
Facade bonding
3M™ VHB™ Tape W20F

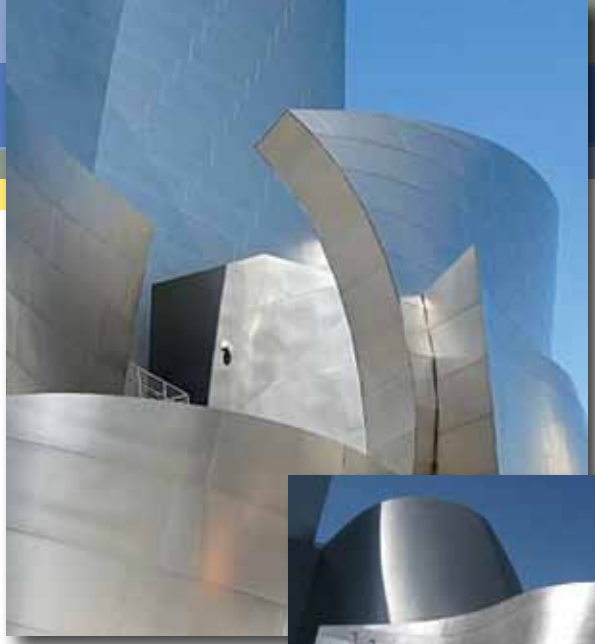


Temasek Tower,
Singapore
Architect: Architects 61,
1985
Aluminum stiffeners
bonded to curtain
wall panels.

Exterior applications

3M™ VHB™ Tapes for Architectural Metal Panels...

adhesive technology for the art and productivity of commercial construction



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Beauty, not the tape, is in the eye of the beholder

- Virtually invisible fastening helps keep surfaces smooth and clean to enhance design and appearance
- Use a wider variety of materials more readily for high impact visual combinations

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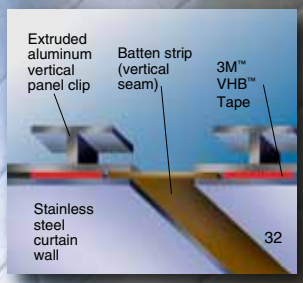
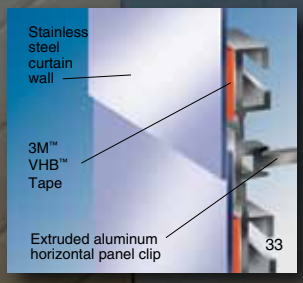
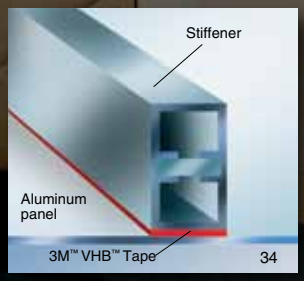


Vertical seam



Horizontal seam



Walt Disney Concert Hall,
Los Angeles, CA, USA
Architect: Frank O. Gehry
Curtain wall: Permasteelisa, 2003
Stiffener and frame attachment.

Jumeirah Beach Hotel,
Dubai, UAE
Curtain wall design: Schmidlin AG, 1998
Aluminum panels bonded to steel stiffeners.

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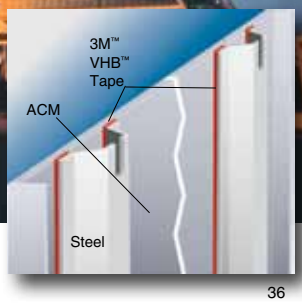

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Fortaleza Airport
Fortaleza, Brazil, 1998
Stainless steel panels bonded to steel frame.

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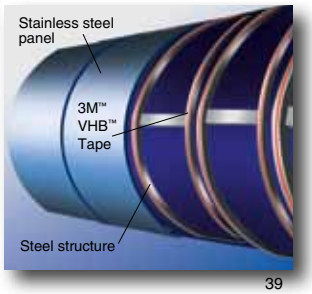

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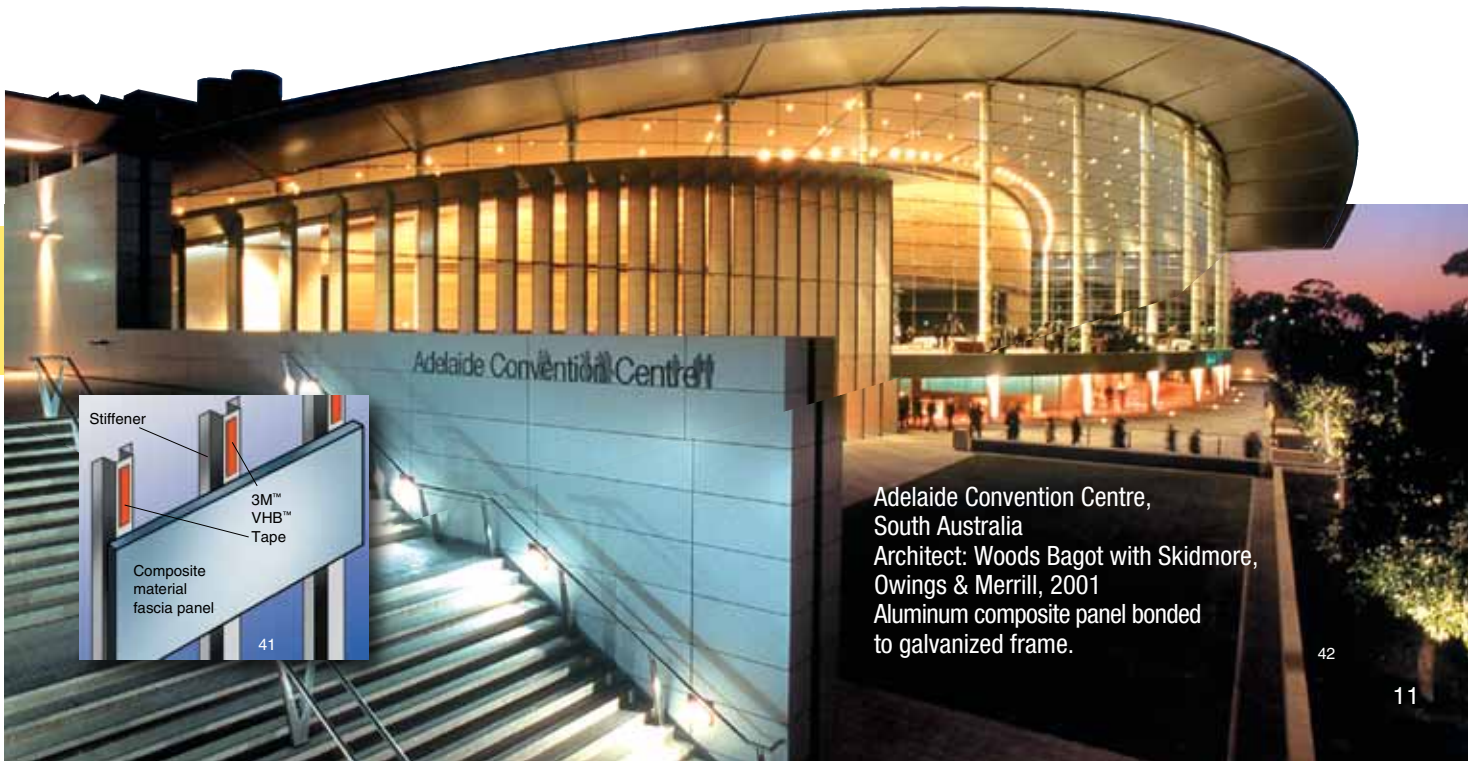

Adelaide Convention Centre,
South Australia
Architect: Woods Bagot with Skidmore, Owings & Merrill, 2001
Aluminum composite panel bonded to galvanized frame.

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3M™ VHB™ Tapes for Architectural Metal Panels... greater choice of material combinations for visual impact

Pettlaarspark
Den Bosch, Netherlands, 2006
Fabricator: Sorba
Aluminum panel bonding
3M™ VHB™ Tape W20F

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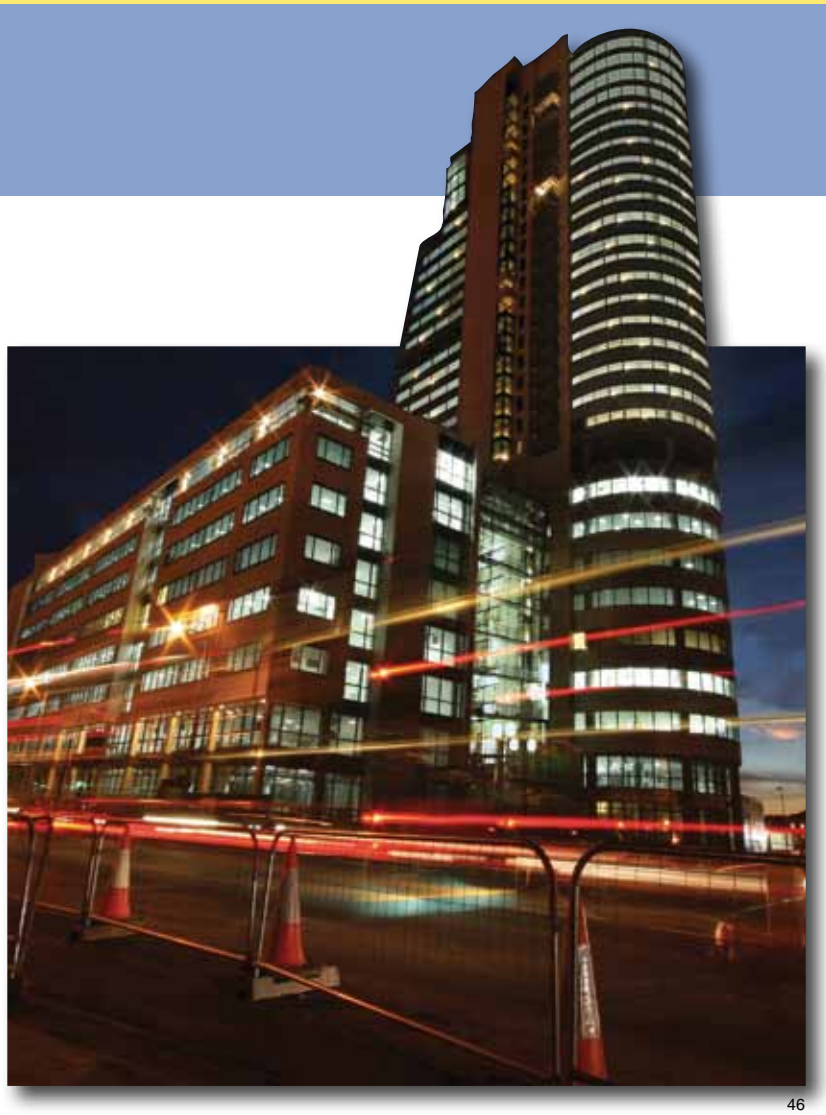

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Bridgewater Place
Leeds, UK, 2007
Architectural Firm: Aedas, 2007
Bonding stiffeners to architectural panels
3M™ VHB™ Tapes 4611 and 4655
Photography: www.turnkey.eu.com

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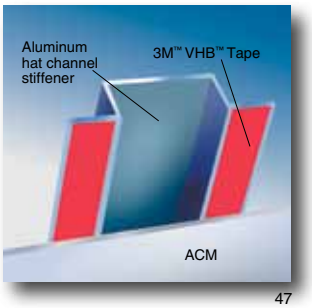
3M™ VHB™ Tapes for Architectural Metal Panels...

applies easily to bond many materials flat or curved



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Plaza Centenário,
Sao Paulo, Brazil
Architect: Carlos Bratke, 1995
Aluminum stiffeners bonded to ACM panels.

Expands the range of design and material options

- Join many surfaces including dissimilar materials; tape prevents bi-metallic corrosion
- Use lighter weight and thinner substrates
- Bond most painted and powder coated surfaces, and hard-to-bond plastics such as acrylic and polycarbonate

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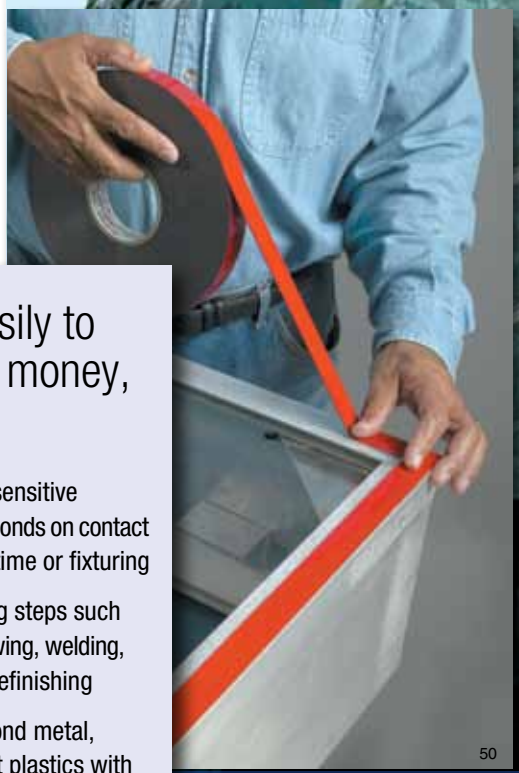
Khalifa Stadium
DOHA, QATAR, 2005
Panel bonding
3M™ VHB™ Tape



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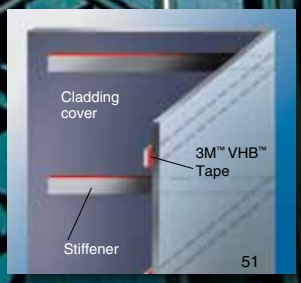
Applies easily to save time, money, and labor

- PSA (pressure sensitive adhesive) tape bonds on contact with no drying time or fixturing
- Save processing steps such as drilling, screwing, welding, clean-up, and refinishing
- Easy-to-use; bond metal, glass, and most plastics with minimal surface preparation



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Dearborn Center, Chicago, IL, USA
Fabricator: Copper Sales Una-Clad, 2003
Stiffeners bonded to exterior metal trim cladding.

3M™ VHB™ Tapes...outdoor performance for productivity, reliability, and design flexibility indoors

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Maceio Airport
Maceio, Brazil
Curtainwall Manufacture: Portico Esquadrias Ltda e Tecmount Produtos Metalicos Especiais, 2006
Architect: Traco Planejamento e Arquitetura
3M™ VHB™ Structural Glazing Tape 4972

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National World War I Museum at Liberty Memorial
Kansas City, MO, 2006
Architect: PGAV
Contract Glazier: A2MG
3M™ VHB™ Structural Glazing Tape

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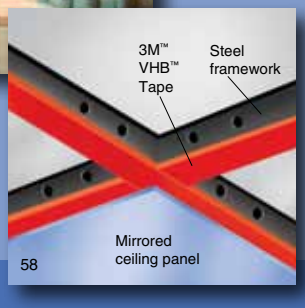
O'Hare Airport,
Chicago, IL, USA
Architect: Custom Products of Southgate, CA, 1987
Mirror-finish composite ceiling panels bonded to
a suspension frame.



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Background

3M has been a technological leader in acrylate pressure sensitive adhesive (PSA) technology since the early 1960s. 3M™ VHB™ Acrylic Foam Tapes are an example of this high performance, durable bonding technology and were first introduced in 1980. 3M™ VHB™ Tapes were quickly adopted in the building facade industry after the introduction of this state-of-the art technology. The first applications in this industry utilized 3M™ VHB™ Tapes for architectural metal panel attachment to framework and stiffener bonding. Thousands of buildings around the world have been completed where 3M™ VHB™ Tapes are employed as bonding agents for architectural metal panel applications. In 1990 the use of 3M™ VHB™ Tapes in the building facade industry spread to structural glazing. This involved the use of 3M™ VHB™ Structural Glazing Tapes as a replacement for structural silicone sealants. Since 1990 there has been over 3000 successful commercial building applications around the world utilizing 3M™ VHB™ Structural Glazing Tapes.

Composition

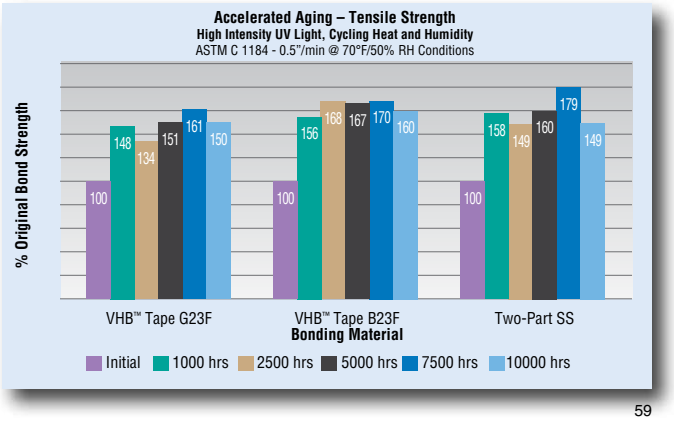
3M™ VHB™ Tapes have proven over time to be high strength, durable bonding materials. The long-term aging resistance lies in the polymer comprising these tapes. The chemical bonds that make up the polymer chains consist of carbon-carbon single bonds that are highly resistant to energy in the form of heat or ultraviolet light, as well as chemical attack. In less durable foams or adhesives, such conditions could lead to cleaving of the polymer backbone and thus a weakening of mechanical properties. In the case of acrylic adhesives and foams, however, additional crosslinking is chemically favored over chain scission (cleavage). This means that, rather than undergoing a process of decomposition, the acrylate materials will tend to build modulus very slightly over extended exposures. This translates to a stronger, long lasting bond.

Durability

The ability of acrylic adhesives to withstand cold and hot temperatures, UV light exposure, humidity, and other environmental conditions has been documented through both real-life and accelerated aging studies. Since 1980 there are several thousand applications where the performance of 3M™ VHB™ Tapes is demonstrated on a daily basis. Accelerated aging tests have also been conducted to support the use of 3M™ VHB™ Tapes for these demanding applications. Accelerated aging tests are conducted by subjecting bonded samples to cycling heat, humidity and high intensity UV lamp exposure, and measuring the dynamic tensile and peel strength values.

Accelerated aging was conducted at the 3M Weathering Resource Center in St Paul, MN, with exposure up to 10,000 hours duration. The objective of this test was to compare the durability and performance of 3M™ VHB™ Structural Glazing Tape to a two-part structural silicone sealant. The exposure used a 3M Proprietary test condition that has been found to be a good predictor of service durability and generally better than typical industry tests. Exposure was under high intensity UV light (Xenon Arc) with cycling heat and humidity. 3M™ VHB™ Structural Glazing Tapes G23F and B23F were bonded between glass and metal (black anodized aluminum) with UV exposure direct through clear float glass (1/4" thick). Test configuration was 1" x 1" tensile (ASTM D897) and 1" width peel mode (ASTM D3330). The same sample configuration was used for the two-part structural silicone sealant except for the sealant thickness which was 3/8". The peel test was only conducted on the tape samples.

A dynamic wind load acting on a curtain wall panel is best represented by a tensile strength test. The following graph compares the original tensile strength to that after different levels of exposure up to 10,000 hours.



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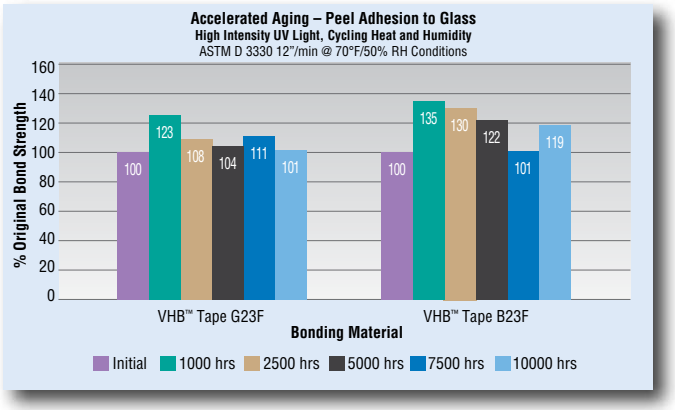
These tests demonstrate the bond strength does not deteriorate below its original performance level, even after exposure of 10,000 hours in these extreme accelerated aging tests. It also demonstrates comparable performance of the 3M™ VHB™ Structural Glazing Tapes to the two-part structural silicone sealant.

The peel adhesion test demonstrates the adhesive bond strength of the 3M™ VHB™ Structural Glazing Tape to the substrate. Since UV light exposure occurs through the glass, a peel test of the tape off the glass substrate was conducted in this same study. It is critical to maintain a good adhesive bond to the glass substrate after years of exposure.



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Product Information

	Product Number	Tape Thickness w/o liner Mils (mm)	Description	Adhesive Type	Temperature Resistance		Relative Adhesion		Solvent Resistance
					Minutes Hours	Days Weeks	HSE	LSE	
3M™ VHB™ Architectural Panel Tapes	G11F	45 (1.1)	Gray, closed-cell acrylic foam tape, conformable. Good adhesion to many painted and bare metals. Plasticizer resistant.	Acrylic	300˚F (149˚C)	200˚F (93˚C)	High	Low	Medium
	G16F	62 (1.6)	Gray, closed-cell acrylic foam tape, conformable. Good adhesion to many painted and bare metals, Plasticizer resistant.	Acrylic	300˚F (149˚C)	200˚F (93˚C)	High	Low	Medium
3M™ VHB™ Structural Glazing Tapes	G23F	90 (2.3)	Gray, closed-cell acrylic foam tape, conformable. Good adhesion to many painted metals and glass.	Acrylic	300˚F (149˚C)	200˚F (93˚C)	High	Low	Medium
	B23F	90 (2.3)	Black, closed-cell acrylic foam tape, conformable. Good adhesion to many painted metals and glass.	Acrylic	300˚F (149˚C)	200˚F (93˚C)	High	Low	Medium

Note: Additional 3M™ VHB™ Tapes are available on a regional basis for structural glazing and architectural panel applications. Please contact your local 3M representative to determine the availability of these products.

Optimizing 3M™ VHB™ Tape performance on a wider variety of surfaces

3M™ VHB™ Tapes bond permanently to most surfaces when application requirements are met.

Clean

In most cases, simply clean substrate with an IPA/water mixture.

Pressure

Apply 15 psi at the bond line.

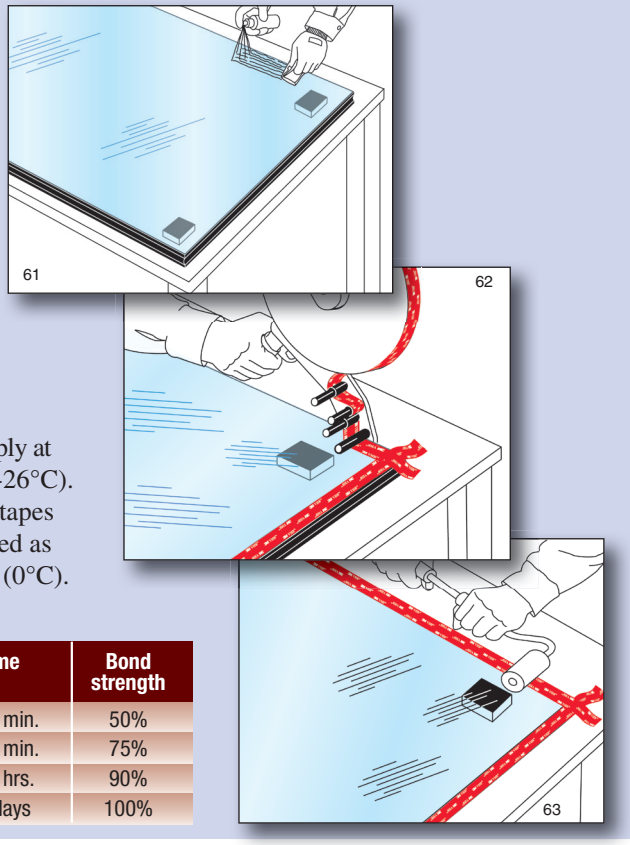
Temperature

Typically apply at 50-60°F (10-26°C). Some VHB tapes can be applied as low as 32°F (0°C).

Time

Instant tack at room temperature.

Time	Bond strength
20 min.	50%
60 min.	75%
24 hrs.	90%
3 days	100%



NOTE: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. Please consult with your 3M representative to determine suitability for a particular application. Each application will be reviewed on a project specific basis. Application guidelines will be based upon adhesion test results generated by 3M Technical Service. These project specific application guidelines will be provided to the customer and must be followed during the bonding process.

The 3M™ VHB™ Structural Glazing Tapes performance in tensile and peel is relatively unchanged after 10,000 hours of extreme exposure to high intensity UV light (xenon arc) with cycling heat and humidity. According to the 3M service life predictability model for this test, there is a 50% chance that this 10,000 hour exposure in the 3M proprietary cycle is at least as harsh as 28 years in Miami, 29.6 years in Phoenix and 54.2 years in Minnesota, and 50% chance that the exposure is less harsh. However, a service life for the tape bond or the structural silicone sealant could not be predicted from the testing because it continued to perform almost unchanged after the 10,000 hour exposure.

Overall Conclusions:

3M™ VHB™ Structural Glazing Tapes G23F & B23F exhibited excellent durability performance in extreme accelerated aging conditions that included high temperature, UV light and high humidity exposure. This test study also showed the comparable performance of 3M™ VHB™ Tapes to that of a product with a well known durability - the two-part structural silicone sealant. After 10,000 hours of accelerated exposure, the survival probabilities for all three bonding systems are identical, i.e., none have failed. The durability of other 3M™ VHB™ Tapes used for architectural metal panels would be expected to be similar as the basic acrylate PSA chemistry is either the same or very similar. Test results with the 3M™ VHB™ Structural Glazing Tapes are reported in this document as UV exposure through glass is expected to be harsher than an architectural metal panel application, which typically would have no UV exposure to the tape.

Structural Performance Tests

3M™ VHB™ Structural Glazing Tapes have been used worldwide in thousands of glazing applications in the construction industry. To further support consideration for structural glazing applications, performance tests were conducted at an independent, accredited 3rd party test facility (Winwall Technology Pte Ltd – Singapore) to evaluate 3M™ VHB™ Structural Glazing Tapes under stresses and environmental conditions that glass panels would typically experience in a glazed curtain wall system. The glazed panels constructed with 3M™ VHB™ Structural Glazing Tapes provided excellent performance overall compared to control panels glazed with structural silicone sealant. The first test sequence consisted of a PVB laminated glass panel bonded with 3M™ VHB™ Structural Glazing Tape 4972, an insulated glazed unit (IGU) bonded with 3M™ VHB™ Structural Glazing Tape G23F and an IGU bonded with a one-part structural silicone sealant. No failure was observed with either the 3M™ VHB™ Tape glazed panels or the structural silicone sealant glazed panel in any of the tests including ASTM E 330 wind load structural tests at ambient, cold and hot temperatures -13ºF and 160ºF (-25ºC and 71ºC) up to 60 psf (2.9 kPa), corresponding to a wind speed of 155 mph (250 kph). After this, pressures were gradually increased up to 175 psf (8.4 kPa) at ambient temperature conditions. At this point the laminated glass failed and blew out of the chamber. However, glass was still attached and bonded to the 3M™ VHB™ Structural Glazing Tape 4972 around the perimeter of the frame demonstrating the high strength of the tape.

A second test sequence patterned after the first test sequence was run consisting of two single pane tempered glass lites with one bonded with 3M™ VHB™ Structural Glazing Tape G23F and the other bonded with a one-part structural silicone sealant. The IGU panel bonded with 3M™ VHB™ Structural Glazing Tape G23F was also subjected to this second test sequence after surviving the first test sequence. No failure was observed with either the 3M™ VHB™ Structural Glazing Tape glazed panels or the structural silicone sealant glazed panel in any of the tests including ASTM E 330 wind load structural tests up to 210 psf (10 kPa), which corresponds to a sustained wind speed of 290 mph (467 kph). This testing protocol also demonstrated that no air or water leakage was observed with proper assembly methods.

The table at right summarizes the results of the 3rd party structural performance tests.

Panels in 1st Test Sequence

Test Sequence	Test Method	3M™ VHB™ SGT 4972 Laminated Glass	One-Part Structural Silicone IGU	3M™ VH G
Air Infiltration	ASTM E283 at 6.3 psf (0.3 kPa)	No air leakage from panel	No air leakage from panel	No air from
Water Penetration	ASTM E331 at 15 psf (0.7 kPa)	No water leakage	No water leakage	No wate
Temperature Cycling	20 cycles -13°F to 160°F (-25ºC to 71ºC)	For each cycle, temperature is maintained at –13°F for 15 minutes and 160°F for 15 minutes		Subjected
Air Infiltration	ASTM E283 at 6.3 psf (0.3 kPa)	No air leakage from panel	No air leakage from panel	No air from
Water Penetration	ASTM E331 at 15 psf (0.7 kPa)	No water leakage	No water leakage	No wate
Windload Structural	ASTM E330 -13°F, 90°F, 160°F (-25ºC, 32ºC, 71ºC) (hold for 1 minute)	± 60 psf (155 mph, 2.9 kPa)		± 6 (155 mph
Air Infiltration	ASTM E283 at 6.3 psf (0.3 kPa)	No air leakage from panel	No air leakage from panel	No air from
Windload Structural Maximum	ASTM E330 90°F (hold for 10 sec.)	± 125 psf (225 mph, 6 kPa)	± 125 psf (225 mph, 6 kPa)	± 16 (260 mp
Windload Structural Destructive	Maximum Pressure (±)	Glass burst at -175 psf (265 mph, 8.4 kPa)	>-175 psf (265 mph, 8.4 kPa)	>21 (290 mph

Subject to 2X cycling tests

Design Guidelines

3M™ VHB™ Structural Glazing Tape is an acrylic foam tape designed to bond glass to metal frames in glass curtain wall systems. Each application will be reviewed on a project specific basis by 3M. Application guidelines will be based upon adhesion test results generated by 3M Technical Service. These project specific application guidelines will be provided to the customer and must be followed during the glass bonding process. 3M™ VHB™ Tapes are used in architectural metal panel application. A 3M representative should also be consulted when considering the use of 3M™ VHB™ Tapes for panel or stiffener bonding.

Note: For tape area calculations, the following guidelines can be used. Please ensure that each project is reviewed and approved by your local 3M Technical Service representative.

Panels in 2nd Test Sequence

HB™ SGT 23F GU	One-Part Structural Silicone 8 mm Tempered	3M™ VHB™ SGT G23F 8 mm Tempered
leakage panel	No air leakage from panel	No air leakage from panel
r leakage	No water leakage	No water leakage
to 40 cycles	For each cycle, temperature is maintained at –13°F for 15 minutes and 160°F for 15 minutes	
leakage panel	No air leakage from panel	No air leakage from panel
r leakage	No water leakage	No water leakage
0 psf , 2.9 kPa)	± 60 psf (155 mph, 2.9 kPa)	
leakage panel	No air leakage from panel	No air leakage from panel
7 psf h, 8 kPa)	± 167 psf (260 mph, 8 kPa)	± 167 psf (260 mph, 8 kPa)
0 psf h, 10 kPa)	>210 psf (290 mph, 10 kPa)	>210 psf (290 mph, 10 kPa)

Note: The limit of the test chamber was 210 psf (10 kPa). Panels were designed for a 60 psf (2.9 kPa) design pressure. Testing beyond this design pressure demonstrates the safety factor used for 3M™ VHB™ Structural Glazing Tapes. Similar testing has also been conducted for architectural metal panel bonding and stiffener bonding. A technical bulletin is available on the 3M™ VHB™ Tape website summarizing these results.

Dynamic Loads (deadload support):

For dynamic tensile or shear loads (such as windloads), a design strength of 12 psi (85 kPa) is used for 3M™ VHB™ Tapes used in construction applications. This design strength provides a safety factor of at least 5 and was established based on material property testing as well as ASTM dynamic load testing for curtain wall applications.

Static Loads (no deadload support):

For static tensile or shear loads (such as dead weight loads, snow loads, and other long-term loads), a design strength of 0.25 psi (1.7 kPa) is used for 3M™ VHB™ Structural Glazing Tape. This means 4 in2 of 3M™ VHB™ Structural Glazing Tape per one pound of load should be used to support static loads. This guideline provides a safety factor of at least 5.

Important: Dynamic and static load calculations should be performed on unsupported deadload structural glazing applications.The calculations resulting in the wider tape width should be used as the appropriate tape width for the application.

Differential Movement:

3M™ VHB™ Tapes typically perform well in applications where the two bonded surfaces experience movement relative to each other, such as with thermal expansion and contraction. Most 3M™ VHB™ Tapes can tolerate shear movement up to 3 times their original thickness (300% shear strain). For example, this means the 0.090" (2.3 mm) thick 3M™ VHB™ Structural Glazing Tapes G23F or B23F can safely experience shear strain up to 0.27" (6.9 mm).

Tape Thickness -

The optimal thickness of 3M™ VHB™ Tape for a particular application depends on the size, rigidity, and flatness of the substrates, as well as the amount of application pressure applied to mate the surfaces together. In general, thicker tapes will handle greater mismatch and differential thermal movement between surfaces, and provide better contact and sealing. 3M™ VHB™Structural Glazing Tapes come only in one thickness (0.090") with the exception of 0.080" thick 3M™ VHB™ Structural Glazing Tape 4972 available in Brazil. These are the only 3M™ VHB™ Tapes that are available for structural glazing applications. More 3M™ VHB™ Tape options exist for architectural metal panel applications.

Application Warranty

For qualifying applications, 3M provides the curtain wall manufacturer and customer the confidence that 3M™ VHB™ Tapes can deliver high performance and long-term reliability. Once your application and assembly process are approved, 3M guarantees that the tape will not fail for the warranty period. See your 3M representative for details on obtaining an application warranty.

Muntin bars with 3M™ VHB™ Tape look even better with a 10-year warranty

Attach wood, aluminum, or plastic muntin bars to windows and doors. If your application and application process is approved, 3M guarantees to you that the VHB tape will not fail for 10 years. These high strength tapes resist UV light, outdoor exposure, and thermal expansion/contraction for long term reliability.

Limited Product 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 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. **Important Notice:** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of these materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which 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. **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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