

# Automotive News

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## Despite cost, more carmakers use laminated glass

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DETROIT — For Pete Dishart, the sheet metal isn't the most interesting thing to see at an auto show. When he walked the floor of the Detroit show last month, the global product marketing manager of Pittsburgh glass maker PPG Industries Inc. was looking at the vehicles' window glass.

Dishart was pleased by what he saw: a growing number of vehicles sporting laminated safety glass in places other than the windshield. Laminated glazing, especially the kind designed to reduce interior noise, is spreading to other windows and roofs.

"Now people are going to do more than see through the glass," Dishart says. "They are going to understand the value that the glazing industry can provide to the automobile."

### Sandwich windows

Laminated glass is a sandwich of plastic film, typically polyvinyl butyral, or PVB, between two layers of glass. It has been around since the 1920s and mandatory in windshields since 1968 because it resists penetration. When broken, rather than shattering or breaking off in shards, the glass continues to adhere to the plastic.

Tempered safety glass has been commonly used for side and rear windows, as well as sunroofs. Tempered glass has been strengthened by heating and rapid cooling. It is easier to penetrate than laminated glass and breaks into small, diced pieces.

Until recently, cost had prevented widespread use of laminated glass outside of the windshield. Laminated glazing can cost three to four times as much as tempered glass, says Dishart, who also is president of the Enhanced Protective Glass Automotive Association.

In 1998, just two U.S. production vehicles had laminated side windows. Today, the tally tops 40, says Tom Laboda, automotive

market development manager for Saflex, a division of chemical maker Solutia Inc., of St. Louis.

Solutia is the world's largest supplier of PVB interlayers. Its major rivals are Japan's Sekisui Chemical Co. and DuPont Glass Laminating Solutions, a unit of E.I. du Pont de Nemours & Co. in Wilmington, Del.

Dishart cites three primary reasons automakers are using more laminates: "sound, security and UV," or ultraviolet, protection.

### Sound solutions

Acoustic glass is a relatively new subcategory of laminated glass. It has an interlayer designed to absorb sound. Saflex offered its first acoustic interlayer in 2003.

According to J.D. Power and Associates, wind noise perennially is the biggest complaint that consumers have about their vehicles.

Saflex research shows that acoustic laminated glass can reduce interior noise as much as 10 decibels compared with tempered glass. The last two vehicles to win the North American Car of the Year award, the Saturn Aura and Chevrolet Malibu, have acoustic glass. "You don't see this, but when you get in the car, you notice it," Dishart says.

Laminated glass takes 10 times longer for a thief to penetrate, so some automakers have adopted it as a theft deterrent. In a twist, General Motors installed a high-security laminated glass from PPG and Saflex in the fourth- and fifth-row windows of its 12- and 15-passenger vans to prevent riders from being ejected in a crash.

Glass also offers protection from the elements. Tempered glass absorbs about 60 percent of ultraviolet rays. For laminated glass, that jumps to about 90 percent — similar to a sunscreen with an SPF factor of 50-plus.

### Designer favorites

Automotive designers favor either panoramic or cielo glass roofs.



The roof of the Dodge Zeo concept is a continuous piece of laminated glass.

### 3 pluses

Automakers are moving to laminated glass for 3 reasons.

1. Sound
2. Security
3. Ultraviolet protection

Cielo (pronounced "chello") roofs, the most dramatic, are common on concept cars. A cielo roof is basically a windshield that extends behind the driver's head, making the entire roof a continuous piece of laminated glass. The Dodge Zeo concept, shown this year in Detroit, has a cielo roof.

The Ford Verve three-door concept has a panoramic roof, where a header panel divides the windshield and the roof. A panoramic roof can be made of tempered glass, but Laboda says manufacturers are increasingly using laminated glass for UV protection and sound reduction. The production Ford Flex offers a panoramic roof.

Designers are trying to give drivers an open-air feeling "while still having the enclosed structure of a hardtop car," says Chuck Butler, business development manager for DuPont Glass Laminating Solutions. "When you get the glass overhead, it's open and airy whether it's raining or not." **AN**

