


**SafeGuard** ®, a division of IMMI® based in Westfield, Ind., has been the industry leader in child and bus passenger protection for more than 30 years. Utilizing a modern crash-test facility, sophisticated engineering and advanced manufacturing operations, SafeGuard develops and supplies innovative, proven restraint systems and seating solutions for customers worldwide.

BUS SEATS | ADD-ON RESTRAINTS | SAFETY COMPONENTS



## PROVEN TO PERFORM IN BUS SEATS

SafeGuard bus seats undergo the most rigorous testing in the transportation industry. Over the past decade, SafeGuard engineers have conducted the following tests on buses to gain a full understanding of bus occupant protection:

- 12 full barrier crash tests
- more than 200 sled tests
- 20 rollover tests

SafeGuard bus seats are tested and capable of meeting applicable sections of FMVSS 208, 209, 210, 213, 222 and 225 federal regulations. Since NHTSA

has required FMVSS 210 compliance on every U.S. vehicle platform where it has ruled, SafeGuard bus seats are designed and tested on OEM platforms to meet this standard.

With an ongoing commitment to thorough testing during the product development process, SafeGuard delivers innovative seating and restraint systems that have been proven to consistently meet or exceed applicable federal and state requirements.



**School Bus Seat Testing**



**Motorcoach Seat Testing**

**SafeGuard** ®



With exclusive SmartFrame technology, SafeGuard bus seats are the only seats that provide the protection of lap-shoulder belts for belted passengers, while offering full compartmentalization protection for unbelted passengers in frontal crashes.

SafeGuard engineers designed SmartFrame technology for school bus seats and motorcoach seats, with the understanding that drivers typically cannot ensure every passenger remains belted for the duration of every ride.

**safeguardseat.com**

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Made in U.S.A

## Compartmentalization

[kuhm-pahrt-men-tl-ahyz-ey-shun] - noun

Compartmentalization is a passive form of restraint that requires closely spaced, high-back padded seats. In a frontal crash, passengers impact the seat in front of them, which absorbs their crash energy.

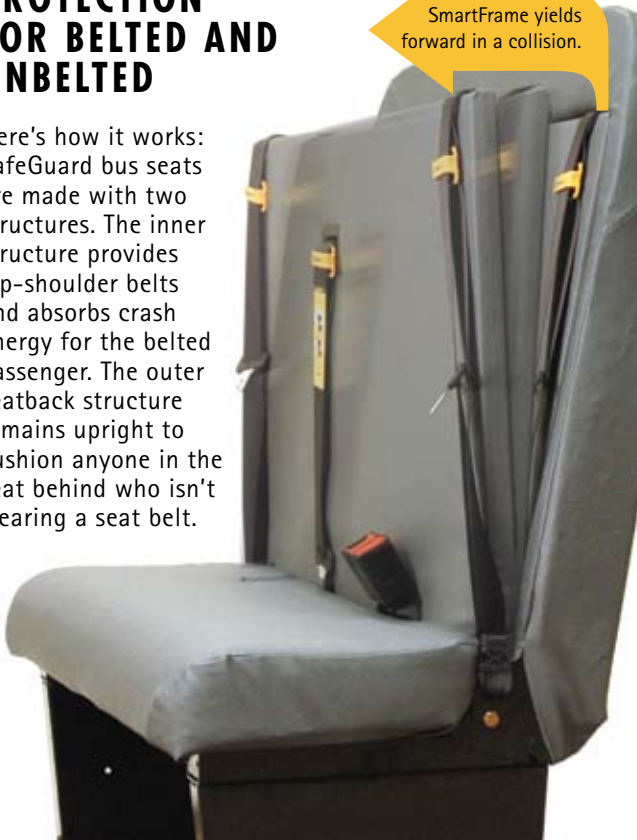
The current school bus safety standards, based on compartmentalization, were put into effect by the National Highway Traffic Safety Administration (NHTSA) in 1977, more than 30 years ago.

Testing, as well as real world experience, shows that compartmentalization offers protection in frontal and rear crashes, but virtually no protection in rollovers or side impacts. **Seat belts provide the best protection in any moving vehicle.**

## SMARTFRAME: PROTECTION FOR BELTED AND UNBELTED

Here's how it works: SafeGuard bus seats are made with two structures. The inner structure provides lap-shoulder belts and absorbs crash energy for the belted passenger. The outer seatback structure remains upright to cushion anyone in the seat behind who isn't wearing a seat belt.

SmartFrame yields forward in a collision.



## DUAL FRAME VS. SINGLE FRAME TECHNOLOGY

With dual frame (SmartFrame) technology, SafeGuard bus seats are proven to deliver full compartmentalization protection to unbelted passengers in frontal crashes.

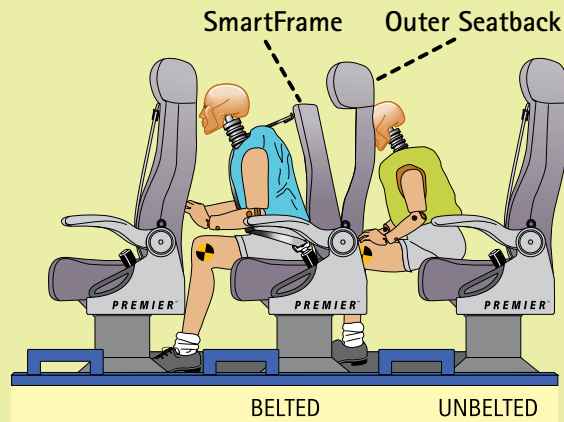
Other belted seats available on the market are designed with belts attached to a single frame,

which will create one of two problems for unbelted passengers. When the seatback is too weak, it folds with the belted passenger in a frontal crash, minimizing compartmentalization protection for any unbelted passengers in the seat behind. When the seatback is too rigid, it can create

injuries for unbelted passengers seated behind.

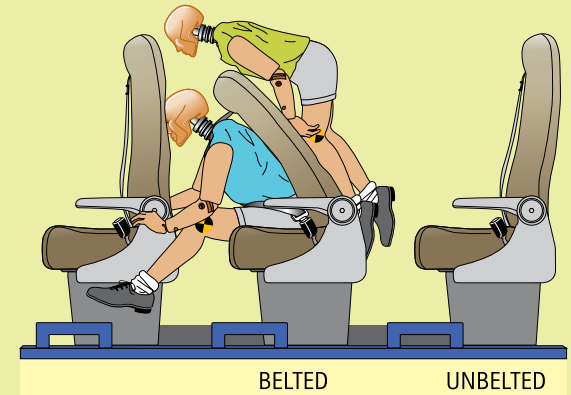
Crash testing shows seats with dual frame (SmartFrame) technology yield lower injury values for belted and unbelted passengers, compared to seats with single frame designs.

### Dual Frame (SmartFrame)



Seating with SmartFrame technology offers full compartmentalization, which helps contain passengers in frontal crashes.

### Single Frame



Seating without SmartFrame is not designed to provide compartmentalization, leaving unbelted passengers vulnerable to forward momentum.

## MAINTENANCE ADVANTAGE

The modular design of SmartFrame allows simple access and easy service of restraint systems and upholstery.

