Vehicle Roof Structure Design Can Significantly Reduce Occupant Injury

Susie Bozzini*, Donald Friedman** and Raphael Grzebieta***

*Safety Engineering International Goleta, CA, USA
** Center for Injury Research, Santa Barbara, USA
*** TARS, University of New South Wales, Australia
Figure 1. Roof strength-to-weight ratio within 5 inches of crush
Figure 2. Dynamic testing results of an early model Ford Ranger
Figure 3. Red Line = Far Side A-Pillar intrusion for Production Jeep in Dynamic Rollover Testing
Figure 4. Far Side A-Pillar intrusion for HALO™ equipped Jeep in Dynamic Rollover Testing.
Figure 5. Post Rollover Position

Figure 6. Being dragged from ditch

Figure 7. Vehicle balanced on HALO™ ROPS

Figure 8. Vehicle after being righted
Figure 9. Single Cab HALO™ B-Pillar Reinforcement
Figure 10. Built in adjustment for variations in OEM products
Figure 11. Single-Cab HALO™ B-Pillar Cross-member
Figure 12. HALO™ roof top mounts to rear roll hoop
Figure 13. Finite element analysis model test run results of Single Cab with HALO™