

## **Aircraft Emergency Evacuation Study with Injured Passengers**

Hae Chang Gea, Rutgers University, Piscataway, NJ  
Garnet A. McLean, FAA CAMI, Oklahoma City, OK

### **Abstract**

FAA regulations require that all on board passengers must be able to evacuate from the aircraft with half of the exits blocked during any emergency. Real life evacuation exercises are used to test the safety of aircraft cabin design. A very real situation that might hinder the evacuation process is the presence of injured passengers. The injury may occur before or even during the evacuation process. In either case, it becomes a very important factor for the entire aircraft evacuation process. However, it is very dangerous to have injured passengers participating in the real life evacuations due to extremely high liability risk.

In this study, a computer simulation tool is used to evaluate the aircraft emergency evacuation with injured passengers. Injured passengers are modeled with different slow walking speed for the level of injury during evacuation. Simulation results of evacuation with injured passengers are compared with evacuation with no injured passenger. Total evacuation time and individual evacuation time of each injured passengers are tracked and analyzed. Impact on the seating locations of injured passengers and number of injured passengers are also presented.