

## **On the Utility of Rescue Randy Mannequins in Rescue System Drop Testing**

A series of drop tests are described, comparing the behavior of three different test loads: steel plates, Rescue Randy mannequins, and humans. For drop tests designed simply to determine breaking strengths of components, steel plates are adequate. For drop tests designed to determine realistic peak forces in specific scenarios, it is demonstrated that a test load of steel plates can produce misleading results. In general, the Rescue Randy mannequin provides a better analog for the human as a test load. Specific guidance is provided regarding the kinds of drop tests for which steel plates can be expected to provide realistic peak loads.

These comparisons were made in preparation for testing main line failures in vertical evacuation systems. (Preliminary results of these main line failure scenarios will also be presented.)