

Holding Evacuation Equipment Up to an American Standard

By Ira Gurvitch, President, Elmridge Protection Products, LLC

By its very nature, an evacuation plan must be simple enough for everyone to understand and execute. At the same time, the plan's effectiveness needs to be rigid enough to stand the test of a situation that's full of variables, including: panic and mob mentality; unavailable exits; corrupted or shifting building infrastructure; and visibility and problems with the building's air quality. An evacuation plan is time-consuming to piece together and implement for an office environment, but even the most resourceful emergency manager can be thoroughly lost in times of crisis without one.

Even the best evacuation plan can and will have problems when faced with so many of these variables, depending on the length and severity of the condition. Monthly or quarterly fire drills can help, but in panic situations, it's best that evacuees have the tools necessary to get out of a dangerous, life-threatening circumstance quickly and safely. Having American-certified fire escape hoods made available during an evacuation can help neutralize many of the variables found in an emergency situation, especially with air quality and visibility. However, many of the products in the market today are not certified to any standard. If an office evacuation plan is tested for efficacy, how can an emergency manager make sure that an escape hood will be effective as well?

Glutted Marketplace

Confusion over escape hood options is very real. After 9/11, the marketplace was flooded with a number of different products that touted safety during an escape situation. In 2007, responding to a marketplace glut of questionable products, the Consumer Product

Safety Commission tested a number of off-the-shelf escape products.¹ Not one of these products passed the test.

So again, the question is how can a fire escape hood be integrated into an evacuation plan without questions being raised about its effectiveness? In light of the many sub-standard products on the market, an American ANSI/ISEA Standard 110 was established. This new ANSI/ISEA standard defines both test criteria and approval methods. It contains general requirements for certification – including ISO registration for the manufacturer, independent process and quality control audits and follow-up inspection programs – and a comprehensive schedule of performance requirements and associated test methods.

Certified Solutions

To earn certification, the product must meet specified requirements for physical characteristics, including:

- Ease of donning, a full field of vision, exposure to vibration, puncture and tear, and extremes of pressure and temperature.

- Being tested with a series of chemical gases, including: carbon monoxide, hydrogen cyanide, sulfur dioxide, hydrogen chloride, acrolein and cyclohexane. These gases include those that are toxic byproducts of combustion and those that are effective indicators of performance against an entire class of gases.

Escape hoods incorporated into an evacuation plan should be certified by the Safety Equipment Institute (SEI), which tests thousands of safety and protective products. SEI currently certifies all NFPA 1981 self-contained breathing apparatus (SCBA) used in the fire and emergency services.

Consider the Filter

Arguably, the most important part of the escape hood is its filtering system. Although it is possible to identify certain gases and particles as likely hazards in a fire escape situation, it is important to have a filtering system that is effective against both these specific hazards and also against others that might be encountered. The most effective escape hoods will need a combination filter to remove a wide range of particulates and gases.

- The best particulate filter is a high-efficiency particulate air HEPA filter. These will filter 99.97% or better of sub-micron particles out of the air.

- The best gas filter will contain a catalyst and impregnated activated charcoal. The catalyst is essential for turning toxic carbon monoxide, the number one cause of deaths during a fire, into non-toxic carbon dioxide. The impregnated activated charcoal works in tandem with the catalyst, removing toxic gases from the air and mitigating the effects of harmful gases generated by burning materials during a fire.

Incorporating American-certified escape hoods into an evacuation plan in an office or building can cut down on the number of fatalities and injuries experienced from smoke inhalation and visibility issues during an emergency situation. However, the product that is used needs to have proven efficacy before it can be added to any plan, meaning that only escape hoods certified by SEI to the ANSI/ISEA 110 should be considered. The fire escape hoods that have been certified to this American standard can be found on SEI's Web site, www.seinet.com.

An emergency situation is neither the time nor the place to determine whether a product can live up to its claims.

¹ "Evaluation of Consumer Personal Protective Equipment: Emergency Escape Masks, October 2007" and "Human Factors Analysis of Consumer Personal Protective Equipment: Emergency Escape Masks, October 2007"