

GLO-JO®: A Layer of Safety

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In the ongoing effort to prevent structural firefighting fatalities, assistance in the form of affordable and effective technology is now urgently needed. Studies have clearly shown that far too often, traumatic Firefighter fatalities in structure fires were directly associated with a loss of visibility within the structure. The loss of vision was understandably also shown to have caused loss of company integrity. In fact, according to the *U.S Firefighter Disorientation Study, 1979-2001*, company integrity was lost in 100% of 17 national disorientation incidents examined. It is important to note that maintaining company integrity is associated with effective fireground operations and is also widely regarded as the Firefighters' safety net. Lose company integrity and you not only lose the structure, you may also lose Firefighters.

Higher level of safety is attained whenever technology, staffing, tactics and training are well integrated into firefighting operations so that a weakness developing in any one area will be compensated for by other operational safety components. In this effort, a risk management approach which utilizes layers of safety increases the chances that Firefighter Safety will be maintained. One of the latest layers of safety for the protection of Firefighters is technology called GLO-JO®. A simple, light-weight, illuminated helmet band, constructed of durable components fit for the rigors of interior structural firefighting, GLO-JO® was designed and developed by a U.S. Firefighter. In service, GLO-JO® helps to prevent the loss of company integrity but in the process also facilitates accountability of firefighters under adverse visual conditions and allows for effective teamwork. But most importantly, GLO-JO® helps to prevent Firefighter Disorientation; the second leading cause of firefighter fatalities according to the U.S. Fire Administration.

Company Integrity and Panic

Used in conjunction with national safety standards and practices, other available technology and recommended strategy and tactics, GLO-JO® provides Firefighters with an enhanced level of safety with hands-free application. This is accomplished by tapping into the underutilized benefits found in the ability to see and to be seen during hazardous limited visibility conditions. GLO-JO's blue illuminating light provides the ability of Firefighters to visually maintain contact with fellow Firefighters over a distance of 5 feet in heavy smoke conditions and up to a distance of 12 feet in moderate smoke conditions. The helmet band is also visible in all but the absolute worst visibility conditions in which nothing is visible at a 1 -2 foot distance from the outer surface of the face mask. With the ability to instantaneously and visually track the position of firefighters operating in a structure, within established distances and variable smoke conditions, this feature facilitates the maintenance of company integrity during all phases of interior firefighting including: search and rescue, search for the fire, attack of the fire and while exiting the structure. However, it must be noted, that as in the case of a Thermal Imaging Camera, GLO-JO® must always be used within limitations which includes maintaining close proximity to or constant contact with a handline, which serves as a life line, should conditions rapidly deteriorate. While keeping these visibility limits in mind, a greater degree of coordinated work can be effectively performed without the need of maintaining close distances between firefighters, however, for safety, members should converge together as visibility begins to diminish. This visibility capability offers other subtle yet continuous and valuable benefits. For example, the ability of all equipped firefighters to visually verify the location of each other's position, under poor or limited visibility conditions, serves to minimize the development of fear or panic in Firefighters. Based on years of close observation of Firefighter behavior under blind stressful interior firefighting situations, the associated elevation of pulse rate and respiration rate which leads to rapid depletion of breathing air, stored in self contained breathing apparatus, will be minimized through the calming effect, self-confidence and reassurance gained by the ability to see surrounding Firefighters equipped with GLO-JO® helmet bands. This in turn will translate into enhanced safety and more effective teamwork when teamwork is needed the most.

Firefighter Disorientation

Defined in the *U.S. Firefighter Disorientation Study*, as "the loss of direction due to the lack of vision in a structure fire", Firefighter Disorientation often leads to serious injuries and firefighter fatalities. However, it is important to note that these injuries and fatalities occurred without the advantage of knowing the types of structures they most frequently occurred in, the tactics that proved unsafe and ineffective and other valuable information. Fatalities may be prevented when departments incorporate the hard lessons learned from these fires into future operations, which include the use of dedicated tactics and layers of safety such as GLO-JO®. With the ability to maintain a continuous visual account of firefighters working in the interior of the structure, within visual limitations, GLO-JO® has the potential to act as a valuable and additional layer of safety for firefighters who may otherwise experience life threatening disorientation.

Ability to be Seen

An effective method to avoid serious injury and Firefighter fatality on the fireground is to prevent it from occurring in the first place. However, even with the safest known procedures in place and with adequate staffing, excellent training and the most advanced equipment, unpredictable events will continue to occur. During these unforeseen events, Firefighters should be provided every means possible, to survive the mishap. One of the most critical issues during a Mayday situation involves the ability to quickly locate the disoriented or distressed Firefighter within the structure. Obstacles which hinder this emergency include the obscuring effects of the smoke generated during the fire and possibly the entrapment caused by collapsed roofing materials or clutter in the building. If a trapped Firefighter is to be reached prior to air depletion, Rapid Intervention Teams must be able to locate the downed Firefighter promptly. Additionally, the distressed Firefighter must be provided the cover of protective streams, given the benefit of aggressive use of appropriate ventilation and immediately administered additional breathing air prior to removal from the structure. As a result of the ability of fellow crew members to relay real time and accurate knowledge of the last known location of a downed Firefighter, and by the illuminated blue circular signal, GLO-JO® will provide a distressed Firefighter a significant opportunity to be seen and located by Rapid Intervention Teams during this critical time frame. In this way and without much fanfare, GLO-JO® maximizes the Firefighters' ability to be seen during emergency conditions in low visibility environments and therefore to survive unforeseen danger.

Benefit Summary

GLO-JO® technology, provides product end users with *Enhanced Positional Awareness, (EPA)*. This term describes the benefit of enhanced critical awareness of Firefighter location within a structure. Through the advantage of **EPA**, GLO-JO's manufacturer, CSC Group, LLC, (Creative Safety Concepts), has identified 10 safety enhancements that GLO-JO® intends to offer for the protection of Firefighters. They include:

- 1. Improves the ability to achieve and maintain effective company integrity.*
- 2. Significantly facilitates the accountability process.*
- 3. Allows greater reporting accuracy of the location a distressed Firefighter was last seen operating during "Mayday" situations.*
- 4. Helps Firefighters within a company, to be able to recognize a problem with a fellow company member sooner; thus triggering immediate intervention at the onset.*
- 5. By identifying the blue illuminating band, Firefighters can navigate through a structure more safely, without the benefit of a Thermal Imaging Camera.*
- 6. By enhancing safety and confidence, the subsequent reduction of Firefighter stress allows more efficient consumption of breathing air.*
- 7. Provides Firefighters a heightened sense of spatial awareness, helping to reduce collisions among members, while facilitating timely completion of a given task.*
- 8. Allows fresh companies ability to easily locate the positions of interior working companies, who are in need of immediate back-up or Re-Hab.*
- 9. Helps to provide an indication of the direction leading to the means of egress.*
- 10. Represents a significant layer of safety in the form of an effective, hands-free device, that when used in conjunction with other recognized safe guards, can help to minimize exposure to Firefighter Disorientation.*