

DHS Science and Technology Directorate FireGround Compass

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Why it's needed

In a large building or wildland fire situation, heavy smoke can quickly become disorienting, putting firefighters in danger. A tried and true tool for anyone directionally lost and/or disoriented is a simple compass. However, in fire situations, a standard compass may not meet the need. Firefighters have used inexpensive compasses in the past but they cannot be easily seen in the dark, are difficult to manipulate while wearing thick gloves and have no way to mark points of entry or the location of the Incident Command Post (ICP). A solution is needed so firefighters can be kept aware of which direction they came from, where they are going and where the ICP is located regardless of situational visibility.

How it works

To address this challenge, the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) partnered with Halcyon Products to develop the FireGround Compass, a compass modified specifically for use in smoky, high-heat firefighting scenarios. The device is easy to use, combining a compass with two rotating bezels. One is a "building bezel," with four points labeled A-B-C-D. Each lettered point corresponds to the way firefighters label the sides of a building. This bezel rotates and the compass needle is oriented north. As a result, all users have the same perspective. A separate "command bezel" can indicate the direction of either the ICP or where the user entered the building. The compass also has a light-emitting diode (LED) illumination feature, making it easy to read in a dark, smoky environment. Additionally, the FireGround Compass has been developed to be large enough to manipulate while wearing thick firefighting gloves.



The value

The FireGround Compass provides firefighters operating in dark, smoky, disorienting environments with a tool that will help them keep their directional bearings and always know their ingress and egress points. Constructed with Zytel®, a tough, heat-, chemical- and high-impact-resistant plastic, the device can withstand temperatures of up to 580 degrees Fahrenheit and weighs approximately 8.8 ounces. It is designed to fit comfortably in the pockets of a firefighter's turnout gear and is comparably inexpensive at \$100 per unit.

Next steps

The FireGround Compass has been operationally tested and evaluated and is now commercially available to interested agencies. While it was designed for use by the firefighting community, the device also has practical applications for other first responder disciplines such as law enforcement and other emergency response teams. The FireGround Compass is a low-tech solution that satisfies the first step in addressing the larger problem of indoor positioning for first responders.



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To learn more about the FireGround Compass, contact
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2014-11-04