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PPE Update

Firefighter turnout gear rule changes

Here's a look at the proposed changes to NFPA 1971, what we think of them and the changes we think should have been included

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Those **who know us** understand that we tend to push the envelope when it comes to what we consider advancing positive change within the fire service. The process by which standards are developed for first responder protective clothing is one such avenue by which change can be accomplished, and one where we push our views.

Recently, the National Fire Protection Association completed a meeting to put the final touches on the next edition of **NFPA 1971**. During the revision cycle, the committee considered a range of potential new protection technology, improvements in how products are tested and providing a more informative document.

Based on this activity, we can say that many changes were forward thinking, but that there were several cases where perhaps a sentiment of over conservatism prevailed.

One of the many positive changes was the creation of a new annex, which attempts to provide a lay perspective for explaining the different test methods and types of results generated in the standard. The effort was led by veteran committee member Robert Tutterow, formerly of the Charlotte Fire Department and now a key member with the **Fire Industry Education Resource Organization**, and committee secretary Marni Schmid.

The work on the new educational annex provides a simple description of each test requirement and is intended to better inform the fire service about the details of the standard. This should be embraced because too often ideas about what a standard is and isn't get distorted. Where further understanding can be promoted should be a good thing.

However, there was push back on simplifying the test reports produced by testing laboratories for how protective clothing is certified against the standard. While the standard already obligates manufacturers to provide data in support of products' certification to the purchaser upon request, the reports are difficult to read and interpret, even for those versed in these standards.

Many fire departments make their selections based on this information and we believe this type of output from the standard should be simpler. For multitude of reasons that we had difficulty accepting, the committee decided not to require simplified test reports.

Some contended that the requirement would be overly burdensome, while others stated that the proposed practices would allow for easier misuse of the reportable performance results. We think this is bunk and that a more information leads to better choices — others disagreed with us.

Hood protection

One of the more significant changes came in the form of introducing the optional particulate protective hood. Changes to the next edition of NFPA 1971 may include a new product category where manufacturers can claim a degree of barrier protection for the firefighters' face and neck, particularly against the microscopic soot particles that are known to carry carcinogens.

Some companies have jumped out ahead of the standard with these types of products already — so creating an adequate slate of design and performance criteria within NFPA 1971 is timely. While several requirements are needed to define the necessary levels of protection, it is likely that the new requirements only partly accomplish the needed full characterization of barrier hood properties.

The committee made large strides in a very short time. But we feel that in the hurriedness of the process, some features or evaluations may have been missed or simply judged not ready for inclusion.

Several proposed changes to NFPA 1971 include features or performance characteristics for clothing to aid in gear cleaning or contamination reduction.

Early on there was acceptance for the mandatory inclusion of an access opening for clothing. Such an opening permits fire departments and cleaning organizations to examine the interior of bunker gear liners to determine the condition of the thermal barrier insulation and the moisture barrier film.

We tried to include this change in the last edition of NFPA 1971. Some committee members said that firefighters could use this feature to inadvertently damage their clothing.

Helmets and gloves

There were also proposed changes for outer shells becoming more resistant to water absorption and more repellent to chemicals. While the committee seemed to agree with the former change, the chemical repellency requirement was judged problematic because new rules in the textile business will prohibit the many chemistries used in fabric treatments that help liquids readily run off materials.

A proposal to allow easier helmet ear cover and other textile part removal for cleaning also is not likely to be accepted because the proposed change was judged not yet ready. However, there was

recognition that this feature is definitely needed by the fire service.

Similarly, suggestions for improvements in firefighter eye and face protection devices, namely faceshields and goggles, that can often become a contamination source and are typically easily damaged during structural firefighting, were denied until further study can be made.

Gloves were probably the element of the ensemble most likely to be greatly affected in this cycle. There have been complaints that gloves continue to be a relatively weak link of the ensemble and simply do not fit some well, particularly female firefighters.

In response to these issues, changes have been proposed to NFPA 1971 that include a radically different sizing system and revisions to how some glove performance properties are measured. The new sizing system replaces the extra-extra small to extra-extra large method of labeling with a numeric designation for the length of the index finger and indication of the glove width as narrow, wide or extra wide.

This system lends itself to easier hand measurement using a tool very much like the device used to measure your feet. It is expected to better accommodate the range of firefighter hand sizes, although it will take some getting used to.

There has also been a proposed change in how thermal insulation on the back of the hand will be measured; it will replace a variable test that created uncertainty in glove design. The new test is linked specifically to the types of high-radiant heat exposures that have sometimes caused burns on the back of the hand.

Somewhat more controversial are provisions for ways in measuring glove heat resistance, particularly for shrinkage. Attempts have been made to establish testing procedures that better mimic how glove materials contract from high heat exposure. But it is still unknown how the new test will affect current glove products and if the results of the test adequately correlate with field performance.

Breathability testing

One of the more hotly debated topics was how to add a new breathability test to NFPA 1971. There were many issues brought forward both for and against a new measurement to supplement the existing total heat loss test applied to clothing materials as a means for controlling the stress imparted by bunker gear under a variety of use conditions.

Despite having ample data to show the benefits of this test both from a laboratory and field perspective, there was reticence among many committee members for including this test in the next edition of the standard.

To us, this was disappointing because it appeared that all the right information was put forward for validating a method that could provide a further basis for assessing how clothing materials impact firefighter health and safety.

Overall, many positive changes are being considered for improving firefighter protective clothing despite the fact that some needed areas of revision are not likely to succeed on this occasion.

The process for assuring a better protective ensemble depends on many factors, but most importantly on the diverse input of the fire service itself.

About the author

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Jeffrey and Grace Stull are president and vice president, respectively, of International Personnel Protection, Inc. They are members of several NFPA committees on PPE as well as the ASTM International committee on protective clothing. Mr. Stull was formerly the convener for international work groups on heat/thermal protection and hazardous materials PPE as well as the lead U.S. delegate for International Standards Organization Technical Committee 94/Subcommittees on Protective Clothing and Firefighter PPE. They participate in the Interagency Board for Equipment Standardization and Interoperability and have authored the book, "*PPE Made Easy*." Send questions or feedback to the Stulls via [email](#).

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