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PPE Update

Are there too many firefighter PPE choices?

While more choice may seem welcome; we may not be getting the benefits of choice, and in fact, hurt by it

Feb 22, 2016

Those of us who are a bit older remember when there were only three or four television channels. Now there are hundreds of channels on top of innumerable avenues for accessing televised entertainment.

In those earlier times, consumers had a lot fewer choices for the products and services. Today's abundance of choices allows us to select exactly what we want or need. The same is true for firefighter personal protective equipment — sort of.

Not only is there a large number of manufacturers, there is also an abundance of different product types, components and options. This should be a good thing, but in reality it comes at a cost and sometimes the cost may not be worth the benefit.

Currently, there are 12 different manufacturers that sell glove certified to NFPA 1971. Depending on how each manufacturer establishes its branding, styles or models, there are between several dozen to over 200 different styles of firefighter gloves.

Some of the differences may be based on true distinctions in design such as the overall patterning or placement of materials. Other differences are found in the various material layers.

Despite this large number of gloves, the product range is relatively simple and there is rarely any customization. Some manufacturers offer a wider range of sizes or other features, but these are generally included as part of the overall model.

How a fire department chooses gloves is highly varied but often starts with those that are compliant with NFPA 1971 and then trying on various models to see which provides the best combination of fit and function. Certainly, several factors are needed to pare down the choices from 200 to just a couple that fire department might actually be able to evaluate for purchase.

Helmets, boots, hoods

Firefighter helmets have fewer manufacturers with products certified to NFPA 1971 (there are only six) representing approximately 30 styles. But there are many variants that include the color and finish and different features such as ear covers and the type of eye and face protection.

All of the different options can add up for a large number of selections, but this level of choice is reasonable and fire departments are able to navigate through the different options.

The same can be said for NFPA 1971-compliant footwear where six manufacturers offer more than 60 models and hoods where 12 manufacturers offer 60 styles.

Yet what turns out to be reasonable for gloves, helmets, footwear and hoods gets a little crazy when it comes to garments. For certified garments, there are about 25 manufacturers. And the number of styles, particularly regarding material choices, is huge given all the materials and customization options that exist.

About half of the manufacturers have one style of coat and one style pants, but their sales within the United States is relatively limited.

Material differences

For the approximate other dozen manufacturers, each has several styles, which are primarily distinguished on overall designs related to the type of closure and cut of the clothing. Some models have features that increase protection beyond the requirements of NFPA 1971.

Other design variants include the type of drag rescue device (if more than one is offered), pocket types and locations and types of reinforcements.

Yet the vast majority of choices for the selection of turnout clothing arise from the various material and component options. This is partly due to the approach used in product certification.

Different materials that include the outer shell, moisture barrier and thermal barrier are often separately qualified to their respective requirements within the standard. This allows the individual suppliers to have their materials "component recognized" and thus generally available to any manufacturer.

Use of these different materials and components is generally not limited because there are essentially no tests in NFPA 1971 in which the entire assembly must be evaluated. Allowances are made in the few overall products to examine clothing design independent of the material choices.

This means that a manufacturer can have several hundred different material systems by comprising variations in the selection of outer shell, moisture barrier and thermal barrier to form the overall

clothing composite.

And this leads to a daunting number of choices from which fire departments have significant difficulty selecting without some pre-ordained preferences or reliance on the industry to tell them what to buy.

Supply and demand

Since we live in a free-trade economy, one could argue that the number choices are what they are because the marketplace sustains this diverse availability of products. If there were no demand, there would be fewer products available.

For that matter, those materials or components without a reasonable level of purchaser support would fall out of the marketplace for lack of demand. In this free-market system, the number of market choices would rise and fall based on consumer (firefighter) needs.

One can also argue that a large number choices is good for the fire service. By having many choices, fire departments can choose clothing systems customized to their operational practices with not only pockets in the right places for their radios, but material systems that are consistent with their expectations of protection.

We disagree.

There are too many choices for garments and the number of choices that exist are artificial in terms of the benefits provided. We support innovation and encourage development and release of new products that incrementally improve firefighter protection.

Holistic testing

Nevertheless, the reason for the large number of PPE choices is because testing and qualification is done on a piecemeal basis by a large number of material and component suppliers that are not clothing manufacturers. This is good because it permits shared resources and technology among companies working for the betterment of firefighters.

However, it also comes at the expense of full qualification of the clothing as an overall product. There also can be costs for manufacturers carrying recognized components simply to be competitive with other manufacturers.

The better option is fewer choices but with better characterization of the entire garment with full-scale testing to ensure that the overall system provides consistent protection throughout its design. Until the current approach is changed, fire departments will face an unrealistic number of choices.

In reality, fire departments often select products based on what the manufacturers or material vendors happen to be pushing at the time rather than what can be discern from minute differences in performance test data.

Better characterized gear would promote the identification of new improvements that are not as easily demonstrated by the current approach that permits too many garment choices.

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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