



## Five Things You May Not Know About Turnout Gear

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Firefighters rely on turnout gear to help protect them from dangers they face on the job. Many factors work together to create a thorough turnout system that safeguards firefighters, so we're highlighting five things you may not know about your turnout gear.

### **1. The three components of turnout gear work as a complete system.**

The three layers of structural turnout gear - outer shell, moisture barrier, and thermal liner - work together as a system to provide ongoing protection against thermal and environmental threats. The outer shell is the first line of defense—providing direct protection from fire and reducing heat transfer by up to 30%. It is also the most durable layer of fabric and helps ensure the gear remains intact during a call. The moisture barrier helps resist the penetration of water, chemicals, and bloodborne pathogens. The thermal liner is the closest layer to the skin, wicks moisture away from the body, and is most effective at limiting heat transfer from external heat sources. Without one or more of these components, the firefighter may not be properly protected against structural fire hazards.

### **2. The average weight of turnout gear has gone down over the last 10 years.**

Fabric developments over the past decade have reduced the average weight of turnout gear from 12 pounds down to nine. The weight reduction is largely due to intentional fabric selections in each layer. Weight saving works as a total system and should not be concentrated on a single layer. For years, lighter weight outer shells were available, however, they had to be combined with heavier thermal liners to meet the required TPP values specified by NFPA 1971.

Weight reduction has been most noticeable in the thermal liner. Through fiber and nonwoven fabric selection, and advancements in face cloths and outer

shells, the thermal liner has become lighter and offers enhanced performance benefits. In the past, thermal liners used a single layer of nonwoven fabric; now the multiple layers of nonwovens are lighter and provide additional insulation by trapping air between the layers of fabric to help insulate and reduce heat transfer.

### **3. The fit and tailoring of turnout gear has improved.**

In addition to being lighter, firefighters now have the option to order custom-made turnout gear to fit their exact sizing measurements—from sleeve and pant length, chest width, and type and location of pockets. Not only does this provide a better fit, but it also creates a garment better suited to the work firefighters perform and helps minimize stress and fatigue during and after a call. Eliminating excess fabric and ensuring a proper fit contribute to a safer and heightened wear experience, resulting in firefighters keeping their minds on the task at hand and not on their gear.

### **4. Turnout gear must be cleaned after responding to a call.**

Entering a fire now means that firefighters have a high risk of coming in contact with potential carcinogens. If not properly removed, these cancer-causing radicals can remain on turnout gear and potentially negatively impact those who come in close contact. Before leaving the fire scene, it is important to decontaminate turnout gear to help prevent future exposure to these carcinogens. This includes a full scrub down of the turnout gear, helmet, face mask, breathing apparatus, gloves, and boots. After an onsite decontamination cleaning, all gear should be immediately bagged and properly laundered before wearing again. Taking the time to ensure gear is clean and decontaminated helps ensure the health and safety of firefighters and those around them.

### **5. Turnout gear is not needed for every call.**

Three layer, traditional turnout gear is designed specifically for structural fires. There are many PPE gear options, including single or two layer garments, which are certified to protect the firefighter for non-structural calls. It is important to wear proper gear for what the call requires. An alternative, lighter set of gear can help lower the risk of heat stress for the firefighter and can help extend the life of the turnout gear because it is not being worn as frequently.

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