



Firefighters in VIKING VALKYRIE (left) and VIKING WARRIOR (right) ready for action!

VALKYRIE: It's Not a Cut; It's a Design

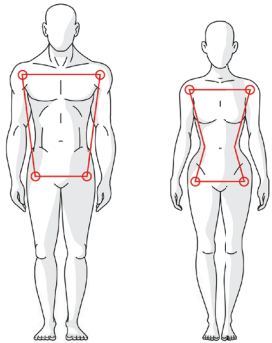
Rethinking Turnout Gear for Female Firefighters

Firefighters rely on all their personal protective equipment (PPE) to protect them from various contaminants in immediately dangerous to life or health (IDLH) environments. The most recognizable PPE component is the turnout gear firefighters wear to incidents. It might surprise you to know that while PPE protects firefighters, it can also hinder them as they work to complete their jobs.

Turnout gear makers have constantly innovated their designs to allow more freedom of movement. However, these innovations still did not have female firefighters in mind. This led VIKING LIFE-SAVING EQUIPMENT, the maker of VIKING WARRIOR turnout gear and VIKING SHIELD triple-certified gear for technical rescue/extrication, wildland firefighting, and EMS, to embark on designing turnout gear specifically for female firefighters. The result is the VIKING VALKYRIE, the industry's first turnout gear designed from the ground up for female firefighters.



Camilla Callesen, development and engineering manager, PPE Fire, at VIKING LIFE-SAVING EQUIPMENT, led the way to develop VIKING VALKYRIE. “Women’s body shapes differ from men’s,” she explains. “That means the fit can never



Gear design must account for key anatomical differences.

be the same and to ensure a better fit and improved mobility we had to design the patterns differently from those made for men. It’s also about performance – gear should work with firefighters and not against them. And most importantly it’s about safety. Firefighters do have a dangerous job, and it is our responsibility to create gear that always protects them. Their safety is always a top priority at all times.”

Women comprise a diverse group when it comes to height and body shapes, which presents unique considerations when designing PPE. As Callesen explains, creating PPE for women requires cut lines placed in certain areas for a good fit. PPE for men tends to have a more uniform shape, so designing for women means accommodating different curves to support mobility and performance.

ENGINEERED FOR PERFORMANCE AND COMFORT

At VIKING personnel will personally wear and test the gear—both men and women’s designs to ensure functionality and comfort. “We truly understand the challenges women face when it comes to performance, fit, and mobility,” she says. “In our department everyone, no matter their role, test the gear themselves. We also try it on several different body types to make sure we can cover different needs.”

VIKING VALKYRIE is made by women for women. “It is created with the female figure and curves in mind,” Callesen adds. “That should always be the standard for female firefighters.”



VIKING VALKYRIE provides space for the bust and hips and can be a different solution for different shapes. Although VIKING often says it is not a tailoring company, in the case of the VIKING VALKYRIE, it has placed a great deal of effort into both the construction of patterns and the challenging grading processes that require a wide range of sizes for proper fit—for example, ensuring that extra length is added in the right places. To this end, Callesen’s team has engineered the shoulder, chest, waist and hip areas. When you change to female sizes, these areas move in a different way than with gear manufactured for men. For example, Callesen highlights the importance of designing for the hips. “When it comes to females, the fit can be very different because some women have wider hips, while others have narrower hips with more shape in the back,” she says. “You need adjustments because even though you need that space in the back, you don’t need it in the sides. So, we’ve designed adjustments in both the waist and the hip areas to allow female firefighters to adjust the gear themselves for the optimal comfort and mobility.”

RESEARCH-DRIVEN INNOVATION

Completing a task like this demands more than just customer insights, it also requires a proper foundation doing their own research. Callesen says VIKING VALKYRIE is a practical solution to a practical problem. VIKING started by thoroughly researching the needs of female firefighters and the challenges regarding proper fit, including studies and available gear on the market.

Once a prototype was developed, Callesen and her team brought it to a fire department. The firefighters who tried on the gear had various shapes and sizes, and Callesen’s team discussed with them what they needed that they couldn’t find in their current gear. They took photographs and videos of the movements and limitations of their current gear, which provided Callesen with focus areas to bring back to the design table for gear that would provide the best fit for more confidence on the job.

For example, observing how a female firefighter steps up or climbs onto a truck shows that there is a distinct difference in leg movement, which is directly linked to hip motion. The real breakthrough for Callesen’s team comes when they see a female firefighter trying on the gear and realizing that someone took the time to research and address the challenges they’ve faced with ill-fitting gear.





END-USER TESTIMONIAL:

REAL IMPACT ON THE FIELD

FIREFIGHTER KENDALL TAYLOR

Voice-of-the-customer feedback has been critical for VIKING in developing VIKING VALKYRIE. Two and a half years ago, VIKING brought the VIKING VALKYRIE to the Tulsa (OK) Fire Department. Firefighter Kendall Taylor was there from the start. "VIKING came to the Tulsa Fire Department 2½ years ago with the first VIKING VALKYRIE demo sets for females of different heights and weights to try on," she says. "Over the next 2½ years, the design engineer and company reps came to Tulsa numerous times with an improved set with all the changes we had suggested during the prior meeting. Being able to request modifications and see that what we wanted and needed was being listened to was incredible."

Taylor has been in the fire service for eight years, and during that time she has been given the option of bunker gear with an athletic fit. She explains that while it is a different cut, it still has way too much fabric, causing it to bunch up in many areas, making mobility more difficult. "The difference with VIKING VALKYRIE is that it was designed with the female figure in mind," she says. "What does that translate to? Less fabric overall, a contoured waist, and not just one adjustment strap in the pants but two. The inseam has been configured for females, taking away the extra-long fabric in the groin area, which affects mobility significantly. Waist, hip, and chest adjustments allow for a more secure and comfortable fit."

Taylor says that having turnout gear designed specifically for females is crucial for safety, comfort, and performance in firefighting. "Traditional turnout gear has historically been designed for male body proportions, which can create serious fit, mobility, and safety issues for female firefighters. Female firefighters should never have to compromise on safety, performance, or comfort because they are wearing gear designed for someone else's body type."

A GAME CHANGER FOR WOMEN IN THE FIRE SERVICE

Now at the end of a three-year process, Taylor is honored to have played a role in its rollout. "Being involved in the design and fit of VIKING VALKYRIE turnout gear—the first female-designed, UL-certified bunker gear—was both an incredible honor and is a game changer for women in the fire service," she says. "This wasn't just about creating gear that looked different—it was about engineering a suit of armor that truly fit and protected the women who risk their

lives every day. The VIKING VALKYRIE project was a three-year process of design, testing, and real-world firefighter feedback. We were hands on every step of the way, ensuring the gear met both functionality and performance needs."

VIKING VALKYRIE's design was led by Callesen and is the first turnout gear design to delve into the metrics of how all the pieces come together to work for the firefighter donning it. The gear was designed from the ground up—it's not just a cut, it's a design. One of the most important success signals so far is watching a female 20-year veteran of the fire service don the gear and realize she finally has turnout gear that fits properly.



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