

Comfort & Compliance in Women's PPE

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Agenda

- Employer Responsibility & Best Practice
- PPE Issues Facing Women
- Comfort & Compliance
- Comfortable PPE Defined
- Heat Related Issues

Employer Responsibility

Outlined by NFPA and OSHA:

- Identify all potential hazards
- Adopt engineering control for hazards to can be mitigated
- Provide the appropriate PPE for hazards that cannot be eliminated
- Educate employees on potential hazards and proper use & care of PPE

“According to a 1995 PECO study, the cost of one accident will pay for AR clothing for up to 3,000 workers for five years.”

*[*Source: Hugh Hoagland, Incident Prevention, Feb 2016](#)*

An OSHA Best Practice

“Whenever employers are required to purchase PPE, they should purchase these items in size ranges suitable for women.”



“Remember: One size does not fit all!”

PPE Issues Facing Women

- Fit Specific Issues
- Issues with Altering PPE
- Comfort and Compliance
- Heat Stress in the Workplace
- Confidence and Enclothed Cognition



Fit Specific Issues

Decreased Mobility, Dexterity, & Coordination

- Oversized Garments
- Oversized Gloves
- Improperly fitted boots or shoes

Increased Risk of Injury or Accidents

- Ill-fitting hard hats can slide or fall off
- Oversized safety glasses leave gaps
- Poor fit leaving areas of exposure
- Oversized garments lead to tripping or catching on equipment



**Source: Thomas J. Bukowski, Safety&Health, 2014*

Issues with Altering PPE

- Voids manufacturers warranty
- Reduced efficacy
- Potentially voids garment compliance
 - ANSI/ISEA 107 – High Visibility
 - NFPA 2112 – Flash Fire
- Potential use of unsafe/harmful materials
 - Can contribute to injury should an incident occur
- Does not address ergonomics



**Source: Thomas J. Bukowski, Safety&Health, 2014*

Comfort & Compliance

In a 2016 survey conducted by ISEA & VPPPA found that over **90% of safety professionals and end users surveyed stated they had witnessed workers not wearing PPE in situations that required it.**

Comfortable PPE increases compliance

- Choose garments that do not contribute to heat stress
- Provide properly fitting PPE

*[*Source: Laura Walter, EHS Today, Nov 2008,](#)*

[Source: Sandy Smith. EHS Today, Aug 2010](#)*

*[*Source: Thomas J. Bukowski, Safety&Health, 2014](#)*

The Risk of Non-Compliance

- Leaves workers at risk of injury
- In burns that resulted in hospitalization
 - Cost per case of over \$120,000
 - Required 11-13 days of in-hospital treatment

Source: American Burn Association, National Burn Repository 2014, www.ameriburn.org

- 2nd most costly workers compensation claim

Source: Liberty Mutual Research Foundation, From Research to Reality, Work Related Electrical Injuries, 2010

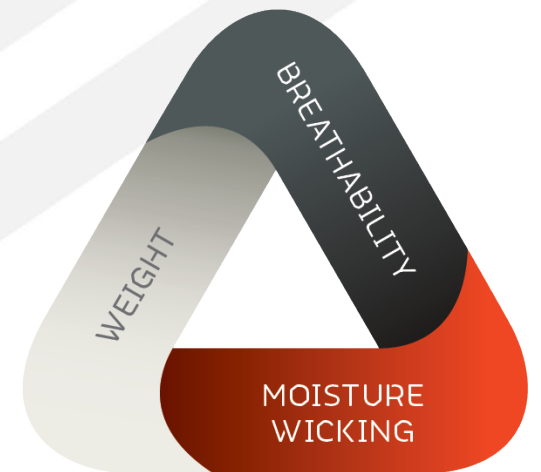
- Leaves employers at risk for OSHA violations & fines

**Source: [Thomas J. Bukowski, Safety&Health, 2014](#)*

Defining Comfort

Based on end user research, a comfortable garment has 3 important characteristics:

- **Lightweight:** Fabric that won't weigh you down
- **Breathable:** Allows heat & air to flow through
- **Moisture Wicking:** Pulls moisture away from the body.



The Dangers of Heat Stress

Results In:

- Fatigue & Confusion
- Cramping
- Dizziness
- Heat Rash
- Heat Stroke

Risk Factors:

- Dehydration
- Overexposure to high heat
- High exertion & lack of rest
- Certain health conditions & medications



osha-niosh heat safety tool

OSHA-NIOSH Heat Safety Tool
Centers For Disease Control... [OPEN](#)

Heat Index

McAllen TX
80°F 74%

Low Risk

Hourly Index

3:00 PM 90°F
Feels Like 90°F

4:00 PM 91°F
Feels Like 91°F

Moderate Risk

5:00 PM 90°F
Feels Like 90°F

Location: McAllen TX

Precautions
Increased risk for heat-related illness.

OSHA-NIOSH Heat Safety
op
opical Blue LLC
★★★★☆ (17)

oke FIRST AID Heat Index

OSHA QUICK CARD™

Protecting Workers from Heat Stress

Heat Illness
Exposure to heat can cause illness and death. The most serious heat illness is heat stroke. Other heat illnesses, such as heat exhaustion, heat cramps and heat rash, should also be avoided.

There are precautions that can be taken any time temperatures are high and the job involves physical work.

Risk Factors for Heat Illness

- High temperature and humidity, direct sun exposure, no breeze or wind
- Heavy physical labor
- No recent exposure to hot workplaces
- Low liquid intake
- Waterproof clothing

Symptoms of Heat Exhaustion

- Headache, dizziness, or fainting
- Weakness and wet skin
- Irritability or confusion
- Thirst, nausea, or vomiting

Heat Illness & Productivity

OSHA sites:

Workers suffering from heat exhaustion are at greater risk for accidents since they are less alert and may not be able to think clearly *Source: OSHA [Heat Training Guide](#)

Comfortable PPE encourages a safer, more productive work force

- Reducing the risk of heat stress allows workers to maintain focus
- Results in less mistakes and safer work practices
 - Human error is often the root cause of an arc flash incident

Benefits of Phase Change Technology

What is “Phase Change Technology”

- developed for NASA
- Reduces perspiration up to 34%
- Temperature regulation balances skin temperature +/- 3 degrees

Benefits Specific to Women

- Helps increase comfort during hot flashes
- 2013 study found that 73% of participants found the phase change shirt more comfortable while experiencing a hot flash

*Source Outlast [Case Study, Technology & FAQ](#)

Confidence and Enclothed Cognition

“**Enclothed cognition** captures the systematic influence that clothes have on the wearer's psychological processes. ... Clothing can enhance our psychological states, and it can improve our performance on tasks.” *Source *Journal of Experimental Social Psychology Study*

"Clothing plus communication skills determine whether or not others will comply with your request, trust you with information, give you access to decision makers, pay you a certain salary or fee for contracted business, hire you, or purchase your products and services." *Source *Business Insider Here's How Your Clothing Affects Your Success*

Suggestions

- Talk to your supervisor or safety manager about women's specific PPE
- There are several companies that offer options for both men & women
- Try on multiple garments to get the best fit
- Never alter PPE

Summary

- It is the employers' responsibility to provide workers with appropriate PPE.
- There are specific issues that should be taken into consideration when outfitting women with PPE.
- Outfitting all workers with comfortable PPE can increase compliance and lead to a safer, more productive workforce.
- Heat Stress is a hazard that can affect all workers. This can be addressed through prevention techniques (including PPE selection)

Questions?

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