



Safety

## No Sweat, No Regret: Your Guide to Cold Weather Layering

James Langford | Nov 30, 2023

Here's what you don't want when you're dressing to stay warm at work in the dead of winter:

A live reenactment of the scene in the holiday classic "A Christmas Story" where a boy who falls on a snowy sidewalk finds out he's so tightly laced into his cold weather gear that he lacks the dexterity needed to get back up.

Fortunately, that outcome is easier to avoid in today's workplaces than it was in the movie's fictional 1930s world, thanks to scientific advances in clothing design and effective layering techniques that simplify staying warm as well as mobile enough to perform jobs safely.

Both are, effectively, regulatory requirements. While the U.S. Occupational Safety and Health Administration doesn't have a specific rule governing work in cold environments, its mandate for hazard-free workplaces holds employers responsible for protecting workers from dangerously low temperatures, which can lead to health problems such as trench foot, frostbite and hypothermia and, in some cases, prove fatal.

That mandate also covers safety gear that leaves workers with sufficient dexterity to do their jobs without injury, a requirement that's spelled out separately in some of the agency's regulations.

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"Layering protective clothing during winter is a tried-and-true way to maximize your comfort when working outdoors or in an unconditioned environment," a representative of professional apparel maker Polartec wrote in a *column* for *Safety + Health* magazine, a publication of the National Safety Council. "The layers need to work well together to offer adequate warmth and breathability, while not being overly bulky and making it uncomfortable to move and work."

Workplace safety experts from OSHA to personal protective equipment makers such as Honeywell and Ergodyne recommend at least three layers of clothing, with none fitting tightly enough to inhibit circulation of blood to legs, arms, hands and feet.

The tiers of winter clothing should include:

- **Inner layer:** Garments next to the body should be made of wool, silk or synthetic material to keep moisture away from the skin, OSHA says. "The No. 1 problem workers have when working out in cold conditions is, plot twist, overheating," Al Buczkowski of Ergodyne says in a podcast posted on the company's website. "That's because once you start working and you do not have a smart layering system, there is no place for that heat to go and you're in for a sweaty spiral of regret."
- **Middle layer:** OSHA recommends garments of wool, fleece or synthetic material that provide insulation even when wet. The middle layer, in many cases, comprises the garments you typically wear to work: pants, shirt and maybe a hoodie, says Ergodyne's Buczkowski. The layer should be low profile rather than bulky so that it fits comfortably under a jacket, he explains.
- **Outer layer:** This layer, typically consisting of coats, jackets and insulated vests, protects the wearer from wind and rain but still allows ventilation to prevent overheating, OSHA explains.

Generally, cold weather gear should be chosen based on "temperature, weather conditions such as wind speed, the duration of outdoor activity and the level of intensity of the job that will be performed," Honeywell says in an *article* for *Occupational Health & Safety* magazine. "This is because the level of perspiration generated while working dictates the layering. In general, multiple layers are better than a single thick garment so that workers have the option to remove layers if they begin to sweat or add layers if taking a break or performing less strenuous tasks."

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Along with layering clothes, workers should consider gloves that provide both protection and dexterity, boots with anti-slip rubber soles and protective eyewear such as goggles that can guard their vision from snow, rain and wind as well as reduce glare, Honeywell says.

Having the right equipment can buoy productivity in addition to keeping workers healthy, the company notes.

**"Prevention is the best way to avoid cold-related illness and injury."**

National Institute of Occupational Safety and Health

"When workers are safe and comfortable for long shifts, even in tough and cold environments, they are more likely to be engaged and confident in their tasks, performing them correctly and efficiently," Honeywell explains.

While working in wintry conditions is unavoidable in many parts of the United States, failing to take adequate precautions can be both dangerous and costly.

In 2020 alone, businesses reported 190 cases of employees losing at least one day of work because of exposure to environmental cold, according to the *Bureau of Labor Statistics*.

"Whether in an indoor or outdoor environment where cold stress conditions are possible, employers and workers should be aware of symptoms of cold-related illness and injury, not only in themselves but also in their co-workers," the National Institute for Occupational Safety and Health says in a brochure on preventing injuries and deaths due to exposure.

The agency cited cases including employees who experienced numbness in their hands after working with inadequate PPE in an airline catering facility's cold room and a truck driver who was treated for frostbite after splashing fuel on his gloves while making roadside repairs. By the time he finished changing the vehicle's fuel filter, his gloves had frozen to his hands.

Employees working in cold conditions should "be prepared to immediately notify their supervisor, provide first aid and seek prompt medical assistance," when needed, the occupational safety and

health institute says. "Prevention is the best way to avoid cold-related illness and injury."

Along with dressing correctly for work in cold, wet or windy conditions, OSHA recommends the following precautions:

- Monitoring your physical condition and that of your co-workers.
- Taking regular breaks to warm up.
- Staying dry. Remember that moisture or dampness—from sweating, for instance—can accelerate heat loss.
- Keeping extra clothing (including underwear) nearby in case you do get wet and need to change.
- Drinking warm, sweetened nonalcoholic fluids.
- Avoiding contact between bare skin and cold metal or wet surfaces.
- Using safe work practices, engineering controls and personal protective equipment provided by your employer.

**What cold weather layering techniques have you found most effective? Tell us in the comments below.**

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