

PPE for Cold Weather: Requirements for Different Worksites



Cold weather introduces hazards that extend well beyond discomfort. Low temperatures, wind, moisture, and reduced daylight increase the risk of cold stress, frostbite, slips, reduced dexterity, and injury. For OHS managers, ensuring appropriate personal protective equipment (PPE) for cold weather is a core responsibility during winter operations.

PPE is often the last line of defense in the hierarchy of controls, but in cold environments it is also a critical enabler of safe work. Inadequate or poorly selected cold-weather PPE can impair movement, reduce visibility, and increase ergonomic risk, sometimes creating new hazards while attempting to control others.

Understanding how PPE requirements vary by worksite is essential to protecting workers across sectors.

Why Cold-Weather PPE Requires Special Attention

Cold-weather PPE must do more than keep workers warm. It must also support mobility, visibility, grip, and communication while integrating with other required protective equipment.

Common challenges include:

- Bulky layers restricting movement and increasing ergonomic strain.
- Reduced manual dexterity due to insulated gloves.
- Fogging of eye and face protection.
- Increased risk of heat stress during high-exertion tasks.
- Compatibility issues with fall protection, respirators, or hearing protection.

OHS managers must ensure that PPE selections are task-appropriate and adapted to environmental conditions rather than relying on generic winter gear.

Core Cold-Weather PPE Considerations

Regardless of sector, effective cold-weather PPE programs share several principles:

Layering Systems

PPE should allow for adjustable layers that manage insulation, moisture, and wind protection. Fixed, overly insulated garments can cause overheating and sweating, increasing cold stress during rest periods.

Moisture Management

Wet clothing dramatically increases heat loss. PPE should wick moisture away from the skin and protect against snow, rain, and wind.

Fit and Compatibility

Cold-weather PPE must fit properly over base layers and integrate with hard hats, harnesses, respirators, and other safety equipment without compromising function.

Visibility

Shorter daylight hours and winter weather reduce visibility. High-visibility winter PPE is essential, particularly near

traffic, mobile equipment, or low-light environments.

PPE Requirements by Worksite Type

Cold-weather PPE needs vary significantly depending on exposure, activity level, and environmental risk.

Construction and Outdoor Trades

Workers face wind chill, snow, ice, and variable exertion levels.

Key PPE includes:

- Insulated, wind-resistant outerwear with high-visibility markings.
- Layered thermal clothing allowing mobility.
- Cold-rated gloves appropriate to task dexterity requirements.
- Insulated, slip-resistant safety boots.
- Hard hat liners compatible with head protection.
- Eye protection that resists fogging.

Care must be taken to ensure fall protection harnesses fit correctly over winter clothing.

Industrial and Manufacturing Facilities

Cold exposure may occur in partially enclosed spaces, loading docks, or unheated areas.

Key PPE includes:

- Thermal workwear that does not interfere with machine operation.
- Gloves that balance warmth and tactile control.
- Anti-slip footwear for wet or icy floors.
- Hearing protection compatible with hats or hoods.

Over-insulation can increase fatigue and reduce safe movement around equipment.

Warehousing and Logistics

Workers often transition between indoor and outdoor environments.

Key PPE includes:

- Removable or adjustable insulation layers.
- Cold-rated gloves suitable for material handling.
- High-visibility jackets for vehicle interaction.
- Footwear with insulation and slip resistance.

Frequent temperature changes increase the risk of condensation and moisture buildup, requiring breathable PPE.

Transportation and Mobile Work

Drivers, delivery personnel, and mobile crews face prolonged exposure and limited movement.

Key PPE includes:

- Insulated outerwear that does not restrict seated movement.
- Cold-rated gloves allowing safe vehicle operation.
- Head and neck protection without obstructing hearing or vision.
- Emergency cold-weather PPE for breakdown scenarios.

Comfort is critical to maintaining alertness and reaction time.

Healthcare, Emergency Response, and Public Services

Workers may move rapidly between indoor and outdoor settings under time pressure.

Key PPE includes:

- Lightweight insulated outerwear for quick donning.
- Gloves allowing fine motor control.
- Footwear with slip resistance for icy surfaces.
- High-visibility elements for roadside or nighttime work.

PPE must support speed and dexterity without sacrificing protection.

Avoiding Common Cold-Weather PPE Mistakes

Several common errors increase risk rather than reduce it:

- Allowing personal winter clothing that does not meet safety requirements.
- Ignoring compatibility issues with existing PPE.
- Failing to replace worn or moisture-damaged gear.
- Assuming "more insulation" is always better.
- Not training workers on proper layering and use.

OHS managers should establish clear standards for approved cold-weather PPE and communicate expectations consistently.

Training and Worker Involvement

Workers are more likely to use PPE correctly when they understand its purpose and limitations. Training should cover:

- How to layer effectively.
- Signs of cold stress and frostbite.
- When to adjust or change PPE.
- How PPE interacts with job tasks and equipment.

Worker feedback is valuable. Those wearing PPE daily are best positioned to identify fit, comfort, and usability issues.

Regulatory Expectations in North America

While specific regulations vary, North American OHS frameworks generally require employers to protect workers from cold exposure and provide appropriate PPE where hazards cannot be otherwise controlled.

Failure to provide suitable cold-weather PPE can result in citations, claims, and increased injury risk. Documentation of hazard assessments, PPE selection, and training supports due diligence.

For OHS managers, winter is a test of preparation. When PPE is thoughtfully selected, properly fitted, and supported by training, workers stay warmer, safer, and more capable – regardless of the weather outside.