PPE Review: Selecting Gear for Low Temperatures



Selecting cold-weather PPE takes more than ordering heavier jackets. A road crew working in freezing rain, a technician servicing electrical equipment, and a forklift operator in a freezer face different hazards. Effective protection must keep workers warm and dry while preserving movement, visibility, dexterity and protection against the job’s other risks.

For OHS managers, the starting point is a task-specific assessment covering temperature, wind, moisture, exposure duration and physical effort. Workers standing still generally need more insulation than workers shovelling snow. Even above freezing, wet clothing and wind can create dangerous conditions.

Build a System That Changes With Conditions

Start with three adjustable layers: a moisture-wicking base, an insulating middle and a protective outer shell. Wool or suitable synthetics generally outperform cotton in cold, damp conditions. Select a wind-resistant shell for exposed sites and waterproof protection where rain, slush or splashes are likely. Leave enough room between layers to preserve insulation without creating snagging hazards.

As temperatures fall, increase insulation and coverage,

particularly around the head, ears, face, hands and feet. Extended exposure or stationary work may require insulated coveralls, heavier mitts and additional face protection. During strenuous tasks, workers should vent or remove layers before sweating heavily, then replace them when activity slows. Wet insulation can leave someone dangerously chilled during a break.

There is no universal temperature at which everyone needs the same garment. Use conditions, workload, and exposure time to guide selection, and reassess when weather or assignments change.

Match Protection to the Worksite

For construction, roadwork, and outdoor maintenance, combine insulation with required impact protection, safety footwear, and visibility. Specify winter outerwear that maintains the required high-visibility coverage; a jacket worn over a reflective vest defeats its purpose. Select footwear for both the surface conditions and the site’s toe, sole and other protective requirements.

For wet environments, including utilities, agriculture and marine work, prioritize waterproof boots, gloves, and outerwear. Manage moisture inside waterproof equipment as well: perspiration still accumulates. Provide dry replacements and opportunities to change socks, gloves, and damp clothing.

For refrigerated warehouses and food-processing facilities, select insulation for the actual room temperature and time inside. Trial gloves against scanner buttons, packaging and vehicle controls. Workers moving between cold rooms and warmer areas need layers they can adjust without removing essential task protection.

For electrical work, welding and other thermal hazards, ordinary winter clothing may introduce additional risks.

Select flame-resistant or arc-rated garments as the assessment requires, including compatible outerwear and base layers. An ordinary synthetic thermal shirt can melt during an arc exposure, even beneath protective clothing.

Chemical-handling tasks require another check: an insulated glove is not automatically chemical-resistant. Confirm the protective material and its suitability for the chemicals and operating temperatures involved.

Check Fit Before Issuing Gear

Hand protection must balance warmth with grip and dexterity. Mittens provide greater warmth but may prevent precise work; use task trials to identify an effective combination. Boots must accommodate suitable socks without becoming tight. Hard-hat liners must be compatible with the helmet manufacturer’s instructions.

Have workers test the complete ensemble while reaching, climbing and operating controls. Check that face coverings, eyewear and other equipment work together without restricting vision or movement.

Finally, gear cannot compensate for excessive exposure. Pair PPE with wind shielding, warm shelters, appropriate work/rest schedules, and training. Inspect equipment, replace damaged items, and keep spare dry clothing available. The right selection is equipment workers can safely perform the job in throughout the shift.

Below is a useful PPE Review Infographic you can keep in your workplace’s breakroom or meeting area so everyone can stay informed.