



Model Winter Worker Safety Standard (WWSS-2025)

Occupational Safety and Health — Protection of Employees in Cold Weather Environments

Section 1. Purpose and Scope

1.1 This standard establishes minimum requirements for protecting workers from occupational exposure to cold environments and related winter hazards. It applies to all workplaces where employees are exposed to environmental cold stress, wind chill, snow, ice, or freezing precipitation, whether outdoors or in unheated/partially enclosed structures. The standard covers risk assessment, exposure limits, preventive controls, training, and emergency response related to cold-weather conditions. Exemptions may apply to emergency operations where compliance is infeasible but must be documented and justified.

Section 2. Definitions

- Cold Stress: Physiological strain resulting from exposure to cold temperatures, wind, or moisture leading to conditions such as hypothermia, frostbite, or trench foot.
- Wind Chill Temperature (WCT): The apparent temperature felt on exposed skin due to the combined effect of air temperature and wind speed.
- Thermal Equilibrium: The condition where body heat production equals heat loss to the environment.
- Warming Shelter: A heated, enclosed area provided for worker recovery during cold exposure.
- Exposure Duration: The cumulative time a worker spends in a cold environment during a shift.
- Cold-Weather PPE: Clothing and equipment designed to retain body heat, repel moisture, and provide traction and visibility.

Section 3. Exposure Assessment and Monitoring

Employers shall evaluate potential cold exposure hazards using National Weather Service wind chill charts or equivalent scientific tables, local meteorological data, and task-specific factors. Where wind chill temperatures are at or below 40°F (4°C), employers shall implement a documented Cold Exposure Control Plan (CECP). Continuous or shift-based monitoring shall occur during cold events.

Section 4. Employer Responsibilities

4.1 Cold Exposure Control Plan (CECP)

Employers shall develop and implement a written CECP including hazard identification, exposure limits, work-rest schedules, locations of warming shelters, communication procedures, training documentation, and an annual review process.

4.2 Administrative Controls

Limit exposure time based on temperature and wind chill thresholds, schedule physically demanding work for warmer periods, ensure adequate hydration and rest breaks, and assign acclimatization periods for new workers.

4.3 Engineering Controls

Provide heated shelters, warming tents, or vehicles for recovery. Install anti-slip walkways, handrails, and de-icing systems. Maintain lighting to at least 10 foot-candles in work areas during reduced daylight.

4.4 Personal Protective Equipment (PPE)

Provide layered, moisture-wicking, insulated clothing and ANSI-compliant footwear, gloves, and high-visibility outer garments. Inspect and replace PPE damaged by moisture or wear.

Section 5. Worker Training and Competency

Employers shall ensure all affected employees receive training covering recognition of cold stress symptoms, proper PPE use, work-rest cycles, hydration, emergency response, and reporting procedures. Supervisors shall receive additional training in incident prevention and exposure tracking.

Section 6. Emergency and Medical Response

Employers shall provide immediate first aid capability for cold-related illness and injury, including supplies for warming and rehydration. Emergency procedures must address hypothermia, frostbite, and trench foot treatment, evacuation, and coordination with EMS.

Section 7. Recordkeeping and Program Evaluation

Employers shall retain CECP documentation, training records, and exposure logs for a minimum of five years. Annual review of the CECP shall assess incident rates, effectiveness of controls, and compliance with this standard.

Appendix A – Non-Mandatory Guidance on Exposure Limits

Wind Chill (°F)	Recommended Max Exposure	Required Controls
32–20°F	1 hour per task cycle	Warm breaks, gloves, head protection

19–0°F	30 minutes per cycle	Heated shelters, layered PPE, hydration
Below 0°F	15 minutes or less	Mandatory heated recovery, buddy system

Appendix B – Example Cold Exposure Control Plan Template

1. 1. Worksite Identification
2. 2. Environmental Monitoring Protocol
3. 3. Worker Rotation Schedule
4. 4. Shelter and Equipment Locations
5. 5. Emergency Procedures
6. 6. Worker Training Record
7. 7. Evaluation and Signature

Appendix C – References

- NIOSH Criteria for a Recommended Standard: Occupational Exposure to Cold Environments
- OSHA Technical Manual, Section III, Chapter 4
- ANSI/ASHRAE 55: Thermal Environmental Conditions for Human Occupancy
- ISO 15743: Ergonomics of the Thermal Environment — Cold Workplaces Risk Management
- National Weather Service Wind Chill Chart