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Protecting Workers and the Public from Thermal Stress
Policy Document

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Introduction: The Need for Action

Thermal stress, which includes hazards from both extreme heat and extreme cold, affects millions of workers across industries, as well as populations such as student athletes and members of the public. When people are exposed to very hot or cold conditions for too long, the consequences can be severe, including heat illness, hypothermia, permanent injury, or even death. Between 2011 and 2020, workers experienced approximately 34,000 heat-related injuries and illnesses involving days away from work (OSHA, n.d.b).

Excessive heat has emerged as a top weather-related danger. In fact, heat is now the leading cause of death among all hazardous weather events in the United States, outpacing hurricanes, floods, and other disasters (NOAA, 2024). The Bureau of Labor Statistics (2024) reported that in 2023, 56 occupational fatalities occurred due to extreme temperatures, 55 of which were caused by exposure to environmental heat. In addition, data collected by the Centers for Disease Control and Prevention show that more than 1,700 heat-related fatalities occurred across the U.S. in 2022, representing a significant increase since 1999 (USAFacts, 2023). Experts believe these figures vastly underrepresent the prevalence of heat-related deaths. For example, death certificates often cite immediate causes of death, such as cardiovascular disease, rather than contributing factors, such as extreme heat (Wittenberg & Harvey, 2024). Cold stress incidents are less frequent but can be equally severe, and workers are injured by frostbite, trench foot, and other cold-related conditions every year (Jacklitsch & Ceballos, 2019). These data underscore that both heat and cold stress pose significant occupational health risks.

Besides causing deaths and injuries, heat stress erodes productivity. A worker's labor efficiency declines when temperatures rise above about 24 to 26 degrees Celsius (75 to 79 degrees Fahrenheit), and at 33 to 34°C (91 to 93°F), their productivity in moderately physical jobs can be reduced by as much as 50% (International Climate Emergency, 2024). These impacts are amplified for people performing strenuous outdoor work and who are unaccustomed to extreme heat.

In addition to the human toll, thermal stress is also a serious economic issue: the Center for American Progress (2023) estimated that extreme heat costs the United States $1 billion each year in excess health care expenses, such as emergency department visits and hospitalizations. Taken together, the human health, safety, and economic costs of thermal stress are too great to ignore—and are increasing. The need for action on thermal stress is clear, significant, and pressing.

The Challenge of Thermal Stress

If heat and cold are well-known hazards, why do overexposures remain such a widespread problem? A key challenge is human perception and training. Many people overestimate their ability to handle extreme temperatures and may not recognize when they or those around them are in danger until it is too late. That said, it is incumbent upon employers to partner with workers to ensure that warning signs of heat exhaustion or cold stress do not go unheeded. Front-line supervisors, coaches, teachers, and even coworkers often lack sufficient knowledge or training to prevent, identify, and respond to heat or cold emergencies. For example, a worker might press on in hot conditions, unaware that dizziness and cramps are early signs of heat illness, or a coach might not realize how quickly a cold wind can induce hypothermia in inadequately clothed athletes. Therefore, improving education and training is a critical piece of the puzzle.

Adding to the complexity, climate change is intensifying thermal stress risks. The scientific consensus is that extreme weather incidents are becoming more frequent and severe due to global climate change. Many locations are projected to experience substantial increases in the number of heat waves they experience each year and, in general, decreases in episodes of severe cold. In the summer of 2023, much of the world saw record-breaking heat, and July 2023 was the hottest month ever recorded globally (O'Shea, 2023). As more people are exposed to high heat for longer periods, heat-related injuries and illnesses are likely to surge, both on and off the job. Meanwhile, fewer days of extreme cold might reduce some cold injuries but may also lead to complacency and lack of preparedness when cold snaps occur. Climate projections suggest that without intervention, rising temperatures will dramatically increase the number of days that are unsafe for unprotected outdoor work by mid-century. This combination of more frequent heat extremes and shifting weather patterns means that thermal stress is an evolving threat that requires proactive and adaptive strategies.

Thermal stress risks are not distributed evenly. Vulnerable populations, such as pregnant women, bear a disproportionate burden of heat hazards (OSHA, 2023). People with preexisting health conditions, older adults, and pregnant workers are more susceptible to adverse effects of heat (NIHHIS, n.d.). For instance, a pregnant worker's body must work harder to dissipate heat, making heat exhaustion more likely. Outdoor workers in physically demanding jobs, who are often economically disadvantaged, face greater exposure to thermal stress. Workers of color are statistically more likely to be employed in sectors such as agriculture, construction, and delivery services that involve high heat exposure, so these communities are disproportionately exposed to hazardous heat. Moreover, low-income and underserved populations may have less access to cooling resources or medical care, increasing their risk.

In cold climates, people who work outdoors or lack proper winter gear, such as day laborers or migrant workers, are at greater risk of injuries from cold. Disabled individuals and people in rural areas can also be at risk during extreme weather, if they lack training or resources. Any effective policy response must pay particular attention to protecting vulnerable workers and communities.

Recent Policy and Legislative Developments

In response to growing awareness of heat and cold hazards, governments at both federal and state levels have made major strides in policy in recent years. In 2022, the Occupational Safety and Health Administration launched a National Emphasis Program on heat-related hazards to protect workers. This NEP has since been extended to April 2026. As of 2025, the United States was closer than ever to establishing a national heat protection standard. OSHA took a historic step on August 30, 2024, by formally proposing the first heat-specific federal standard for workplaces (OSHA, n.d.a). If finalized, this proposed standard will apply to all industries and cover both outdoor worksites and indoor workplaces lacking adequate climate control. It would require employers to develop and implement heat hazard prevention plans that would include provisions to evaluate heat risks, provide preventative measures such as water, rest, and shade, and take steps to protect workers during high-heat conditions. This progress at the federal level is a significant development—but the current political and regulatory climate leaves doubts as to whether the standard will be promulgated or put aside.

While federal action on heat and cold stress standards progresses, states are taking various approaches—some advancing enforceable protections and others exploring new legislation. As of early 2025, California remains the national leader, having implemented both an outdoor heat illness regulation in 2005 and an indoor heat illness prevention standard in July 2024. This indoor standard requires temperature monitoring, worker training, access to cool-down areas, and mitigation plans in workplaces exceeding 82°F.

Several other states are following suit. Washington and Oregon have already adopted enforceable outdoor heat standards as part of their state OSHA plans. Both states require shade, hydration, and rest breaks during high-heat conditions, and both maintain separate wildfire smoke rules. Although the northeastern U.S. is not typically known for extreme heat,
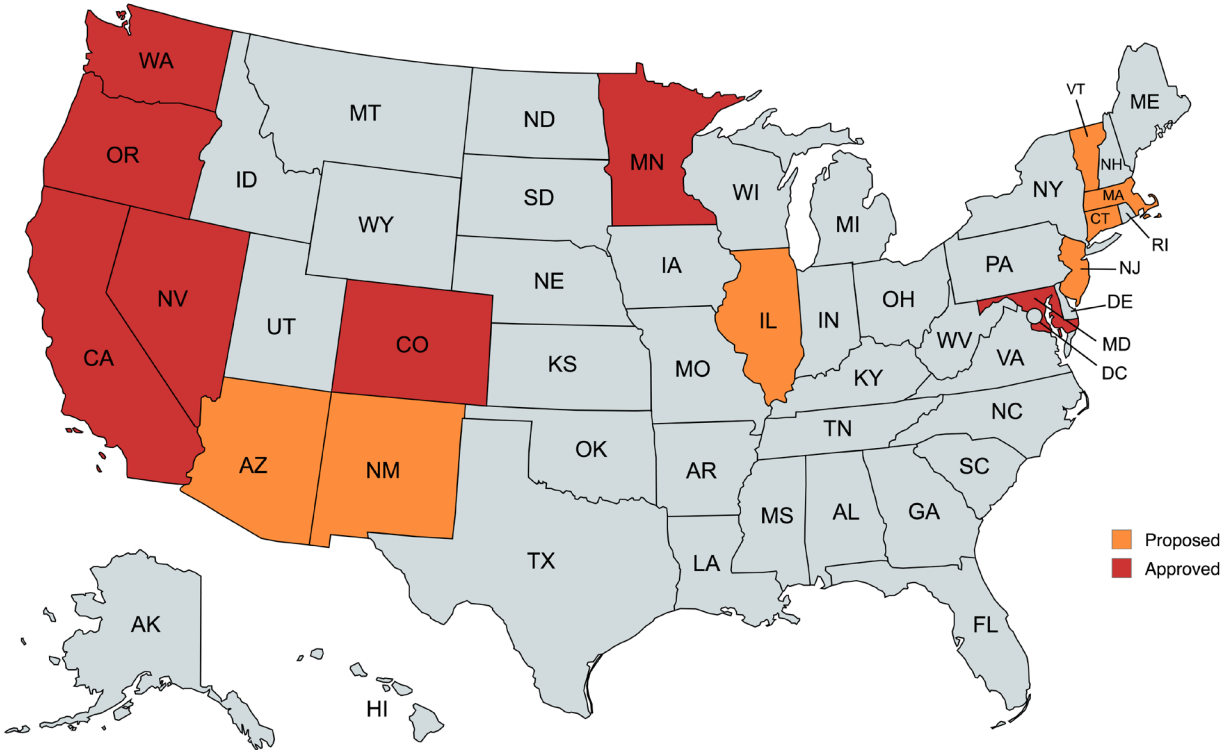
Illinois is pursuing a more comprehensive route. The Workplace Extreme Temperature Safety Act, introduced to the state's House of Representatives in February 2025, would cover both heat and cold stress and establish enforceable thresholds, temporary emergency rules, and anti-retaliation protections. If adopted, it will be among the most robust thermal stress laws in the country. In 2025, Arizona and Iowa introduced bills aiming to create heat illness prevention requirements, although neither bill has passed committee as of the writing of this document. Notably, Arizona's proposal would include heat protections for indoor workplaces and would target high-risk industries such as delivery, construction, and oil and gas.

Elsewhere, legislative momentum is building. New Jersey and New York are reviewing proposals to mandate rest breaks during high-heat events and expand state-led protection programs. Colorado considered a bill to address both heat and cold exposure in 2024, but the measure was ultimately postponed. Even states less known for extreme weather, such as Vermont, are beginning to explore legislative approaches to address workplace thermal hazards.

This expanding landscape signals a broader trend: states are increasingly stepping in to address gaps in worker protection, while federal OSHA continues its rulemaking process. In many cases, state standards are designed not only to fill regulatory voids but to prepare for escalating climate conditions. With nearly a dozen states taking legislative or regulatory action in the past two years alone, the trajectory is clear: heat and cold stress are now front-burner occupational health issues across the country.

A table and map summarizing these activities as of September 1, 2025, are provided below.

State	Status	Scope	Coverage
AZ	Proposed	Task force to determine	Task force to determine
CA	Approved	Indoor and outdoor workers	Non-incarcerated workers
CO	Approved	Outdoor workers	Agricultural workers
CT	Proposed	Outdoor workers	All outdoor workers
IL	Proposed	Indoor and outdoor workers	All workers, with exceptions
MA	Proposed	Public sector outdoor workers	Public sector outdoor workers
MD	Approved	Indoor and outdoor workers	All workers, with exceptions
MN	Approved	Indoor workers	All indoor workers
NJ	Proposed	Indoor and outdoor workers	All workers, with exceptions
NM	Proposed	Indoor and outdoor workers	All workers, with exceptions
NV	Approved	Indoor and outdoor workers	All workers, with exceptions
OR	Approved	Indoor and outdoor workers	All workers, with exceptions
VT	Proposed	Indoor and outdoor workers	All workers, with exceptions
WA	Approved	Outdoor workers	All outdoor workers

High-Risk Industries and Settings

Thermal stress can affect any workplace, but certain industries and environments are particularly vulnerable. Identifying these high-risk sectors is key to targeting resources and protective strategies. Below is a non-exhaustive list of settings where thermal hazards are especially acute.

Indoor workplaces. In industries with heat-generating processes or poor climate control, workers can be exposed to hazardous indoor temperatures.

- **Foundries and metalworking**: Workers near molten metal and furnaces face intense radiant heat.
- **Manufacturing**: Hot machinery and steam production is especially common in rubber, glass, textile, and ceramics processing facilities.
- **Warehouses and distribution centers**: These facilities often lack cooling or heating, exposing workers to heat in summer and cold in winter.
- **Factories with heat-generating equipment**: Equipment such as boilers, dryers, or plastic molding machines elevate ambient temperatures within facilities.

Outdoor workplaces. Workers in outdoor industries are exposed to extreme environmental temperatures that cannot be fully controlled.

- **Agriculture**: Farmworkers face prolonged sun exposure during the summer. In early spring, they may also work in the cold.
- **Construction:** Crews work through all seasons, enduring heat or freezing temperatures on exposed structures.

- **Landscaping and tree trimming**: Prolonged physical activity under sun and humidity can create severe heat stress.
- **Emergency response**: Firefighters and emergency medical technicians (EMTs) must operate in high heat or severe cold, often without control over the timing or conditions of their work, or while wearing heavy protective clothing and equipment.
- **Public safety and law enforcement**: Officers, border agents, and military personnel often face heat while on duty outdoors, particularly in desert or urban environments.
- **Amusement and entertainment**: Staff at stadiums, parks, fairs, or concerts, as well as student athletes and coaches in school sports programs, may be exposed to severe heat or cold.
- **Public works and utilities**: Sanitation crews, utility repair workers, and road teams face year-round exposures, such as hot pavement in summer and burst pipes in winter.
- **Transportation**: Delivery drivers, postal workers, and rail crews often work in unairconditioned spaces, outdoors, or in vehicles, where they may face heat waves or cold snaps.
- **Oil and gas and mining**: Outdoor and subsurface operations may involve extreme heat or cold in remote or high-risk environments.

Other high-exposure settings: Additional examples of workers exposed to hazardous temperatures include those in cold storage warehouses, fisheries, and remote logging camps, as well as volunteers or staff for outdoor events. Their work settings vary, but they all share a lack of environmental control and heightened risk of exposure to severe heat or cold.

Recognizing high-risk industries allows health professionals and policymakers to prioritize inspections, outreach, and regulatory support. Whether through sector-specific heat campaigns for agriculture or targeted compliance education for construction, effective prevention requires collaboration across labor, industry, and government. Thermal stress does not respect industry or sector boundaries—protection efforts must reflect the broad range of environments where people live, work, and perform.

Effective Thermal Stress Prevention Programs
Regulations and laws set frameworks for worker protection, but the day-to-day prevention of thermal stress injuries hinges on effective workplace programs and controls. Whether mandated by an official standard or adopted voluntarily, comprehensive heat and cold stress management programs are the best means to protect workers. These programs integrate risk assessment, engineering and administrative controls, training, and monitoring. By drawing on the best practices listed on AIHA's thermal stress safety resources webpage (2025), as well as other technical resources, organizations can implement the following key elements:

- **Heat and cold injury and illness risk assessment and prevention plans**: Each program should begin with evaluating environmental and job-specific risk factors, including temperature, humidity, radiant heat, air movement, workload, and required personal protective equipment (PPE). Tools like the AIHA Heat Stress App, thermometers, and wet bulb globe temperature (WBGT) meters allow real-time monitoring. Risk assessments for extreme cold consider factors including wind chill, dampness, and exposure duration. Identifying high-risk times and locations enables targeted interventions.

- **Engineering controls:** Engineering controls reduce exposure by modifying work environments. For heat, they includes shade, ventilation, cooling stations, and radiant heat barriers. Maintaining temperatures below 82°F indoors is recommended. Heated shelters, windbreaks, and portable heaters help protect workers in cold environments. Automated temperature monitoring systems can provide alerts when safe limits are exceeded.
- **Administrative controls:** Work organization plays a key role in protecting workers from extreme temperatures. Implementing work-rest cycles, task rotation, and shift adjustments during times of peak heat or cold can reduce risk. Acclimatization plans with gradual exposure increases are vital for new or returning workers. Supervisors should be trained to recognize symptoms of heat illness and injury and empowered to stop unsafe work. Scheduling heavy tasks for cooler parts of the day and enforcing warm-up breaks in winter are additional strategies.
- **Hydration and nutrition:** Frequent hydration is essential. Workers should have access to cool water every 15 to 20 minutes and offered options for electrolytes during extended or high-exertion tasks. Unlimited restroom access is necessary to avoid discouraging workers from drinking sufficient fluids. In cold conditions, warm beverages and adequate nutrition support thermal regulation. Hydration reminders and stations help embed this practice into routine.
- **Protective clothing and PPE:** Appropriate gear can mitigate thermal hazards. To protect workers from heat, it is beneficial for them to wear light, breathable clothing, sun protection, and cooling PPE, such as vests, bandanas, and ventilated hard hats, especially under heavy or non-breathable gear. In cold environments, layered, moisture-wicking, insulating, and windproof garments are key. PPE should be dry and well-fitted, with training provided on safe use and limitations in extreme temperatures.
- **Training and education:** A well-informed workforce can prevent most incidents. Training should cover prevention, early recognition of symptoms such as dizziness or shivering, preventive measures, and response protocols. Pre-shift briefings reinforce expectations for workers, and briefing materials should be linguistically and culturally appropriate. Workers must feel empowered to act when symptoms of thermal stress appear in themselves or others.
- **Monitoring and health surveillance:** Supervisors should track real-time conditions using environmental tools and, when possible, wearable technology that monitors workers' core temperatures or heart rates. Sensors across work sites can detect unsafe conditions and prompt protective actions. Low-tech solutions like color-coded flags or wellness checks can also be effective. All monitoring should inform timely adjustments to workload or rest schedules.
- **Continuous improvement:** Programs should evolve with changing conditions. Annual reviews, worker feedback, and analysis of incidents or near misses support refinement. New technologies or guidance should be integrated as available. Documenting program adjustments and setting measurable metrics, such as workers' water intake or incident counts, supports both compliance and improvement.

Implementing a comprehensive heat and cold stress prevention program is achievable and immensely beneficial. Such a program should be tailored to the specific context of each workplace—indoor vs. outdoor, tropical vs. cold climate, factory vs. farm—but the core principles remain the same: anticipate the hazard, equip and educate people to deal with it, and continuously monitor conditions and responses. Employers who invest in these

measures not only comply with current and forthcoming regulations, they also receive benefits in better worker morale and productivity and fewer health and safety incidents. Technical guidance from OSHA, the National Institute for Occupational Safety and Health (NIOSH), AIHA, and other organizations exists to help employers build these programs— what is needed is the will and commitment to implement them widely.

Role of Industrial Hygienists and OEHS Professionals

Occupational and environmental health and safety (OEHS) professionals, particularly **industrial hygienists (IHs)**, play a pivotal role in protecting workers from thermal stress. As experts in anticipation, recognition, evaluation, and control of workplace hazards, IHs are uniquely positioned to lead the development and integration of heat and cold stress management into an organization's safety culture. This section provides targeted guidance for IHs and OEHS professionals on enhancing thermal stress protections:

- **Monitoring technologies and exposure assessment:** IHs should apply advanced tools such as the AIHA Heat Stress App, WBGT monitors, thermal imaging, and data logging devices, to assess environmental and job-specific exposures. Wearable technology, such as sensors for heart rate or core temperature, can supplement exposure profiles and support real-time interventions. IHs should analyze trends—for example, whether days with high heat indexes are linked with near misses—to justify controls, such as shaded workstations or revised schedules.
- **Diagnostic methods and health surveillance:** Assessing strain on workers, not just environmental heat or cold, is essential. Basic methods include tracking changes in weight and checking a person's pulse. Advanced practices may involve monitoring heart rate recovery or using ingestible temperature sensors. IHs should coordinate with health clinics to monitor conditions that predispose workers to heat- or cold-related illness and injury and document near-miss thermal stress cases. Remember to assess the potential impact of workers' medical conditions and medications. Tools such as the AIHA Heat Stress App should be embedded into daily routines.
- **Record-keeping:** IHs should lead or assist in obtaining heat measurements for six months and keeping detailed records of all heat-related incidents, including near misses, to identify trends and improve prevention efforts.
- **Program integration and management systems:** IHs should ensure that thermal stress management is embedded in hazard assessments, job safety analyses, and emergency plans. Formalizing these elements into a heat stress prevention plan helps define roles, procedures, and response triggers. IHs should collaborate with operations, human resources, and facilities teams to integrate climate resilience into long-term planning.
- **Professional practice recommendations:** IHs should stay current on standards, the American Conference of Governmental Industrial Hygienists' Threshold Limit Values, and NIOSH criteria and incorporate them into policies. Evaluating and validating sensor technology, conducting cost-benefit analyses, and advocating for equitable access to PPE and monitoring tools are key contributions. IHs also play a cultural role by promoting ethical use of data, supporting workers' voices, and ensuring that safety practices are inclusive and accessible. By connecting science to field practice, IHs ensure policies translate into meaningful protection.

Finally, IHs should champion a "no retaliation" safety culture, in which workers feel free to report when they feel overheated or chilled. By incorporating these professional practices—staying informed, using standards, evaluating technology, and fostering a safety culture—industrial hygienists and OEHS professionals can greatly enhance the effectiveness of thermal stress interventions. They act as the bridge between science, policy, and practice, ensuring that the lofty goals of regulations translate into real, on-the-ground protection for workers.

Policy Recommendations

The following is a set of policy and action recommendations for stakeholders, including AIHA members, government agencies, employers, and community organizations, to reduce injuries, illnesses, and fatalities related to thermal stress. While it may not be possible to implement every suggestion immediately, each represents a concrete step toward safeguarding workers and the public from heat and cold hazards.

- **Establish and enforce clear thermal stress regulations:** Support explicit thermal stress standards at both federal and state levels. A federal OSHA standard on heat illness prevention should be finalized, with parallel support from Congress, if needed. States should enact their own protections for indoor and outdoor workers, assigning legal responsibility to employers to assess risks and implement safeguards. Existing regulations should be updated to reflect current science, including humidity and acclimatization requirements.
- **Improve education, training, and awareness:** Expand education and outreach on thermal stress prevention for workers, supervisors, and members of the public. Materials should be multilingual, accessible to low-literacy audiences, and tailored for at-risk groups. Public health campaigns, workplace briefings, and visual training tools can improve recognition and response to symptoms of temperature-related injuries and illnesses. Agencies should integrate thermal safety reminders into heat alerts to broaden awareness and reinforce employer obligations.
- **Ensure access to water, rest, and sanitation:** Policies must guarantee that workers have access to cool drinking water, shaded rest areas, and clean restroom facilities. Hydration should be encouraged by rest breaks and clear communication, and lack of restroom access must not discourage fluid intake. Cooling and warming areas should be equipped and located for easy access. Regulatory guidance should define standards for these spaces, as is the case for eyewash or fire shelter requirements.
- **Mandate planning and hazard assessment**: Require employers, schools, and similar entities to maintain written thermal stress prevention plans. Plans should address risk thresholds, roles and responsibilities, emergency procedures, and acclimatization protocols. Planners should account for events such as heat waves, power outages, and mass gatherings. Tools like the AIHA Heat Stress App and cold stress calculators should be promoted and integrated into daily decision-making.
- **Promote engineering and administrative controls:** Encourage structural and procedural controls to reduce workers' exposure to hazardous temperatures. Incentivize cooling systems, ventilation, misting fans, and insulation through tax credits or grants. Regulations should mandate work-rest cycles, acclimatization periods, and temperature-based limits on labor. Sector-specific guidelines—especially for construction, agriculture, and warehousing—should be developed. These controls must be treated as essential safety measures, not discretionary options.

- **Foster innovation in protective technology:** Expand funding and support for apps, such as the AIHA Heat Stress App, as well as sensor technologies, wearable monitors, and cooling garments. These tools should be evaluated for accuracy across diverse populations and made affordable for small firms and underserved workers. Real-time data from wearables and environmental sensors should feed directly into protective actions, including predictive scheduling and automated alerts. Technology should be integrated with enforcement and compliance frameworks.
- **Incorporate consensus standards and scientific evidence:** Policies should align with scientific consensus and standards, such as the ACGIH TLVs and International Organization for Standardization guidelines. OSHA standards can refer to WBGT-based limits for different worker categories, and NIOSH and CDC guidance on cold exposure should also be embedded. Ongoing research should inform updates to standards, such as emerging cooling strategies, hydration protocols, or climate epidemiology. Evidence-based policymaking will ensure that protections remain effective and up to date.
- **Protect vulnerable workers and communities:** Thermal safety must focus on equity. Outreach, training, and enforcement should prioritize workers in agriculture, day labor, and other low-wage or gig work sectors. Cities should establish protections for outdoor workers, such as mandated breaks or cooling shelters. Special accommodations are needed for pregnant workers or those with medical conditions. Thermal interventions should be recognized as part of climate justice and provided resources accordingly in marginalized communities.
- **Ensure data transparency and continuous evaluation:** Create systems to track and share thermal stress incidents, including moderate or near-miss cases. Data should be aggregated to refine thresholds, guide enforcement, and inform future standards. Stakeholders must understand the limits of raw data, such as ambient weather compared to on-site conditions, and integrate multiple sources, such as wearable sensors and health logs. Policies should require periodic review and adjustment to reflect evolving climate patterns.

By pursuing these recommendations, governments, businesses, and professionals can significantly reduce the toll of thermal stress on American workers and communities. The ultimate vision is a future where no worker fears for their health due to the temperature of their workplace, and one in which "extreme weather" does not mean extreme risk for workers on the front lines.

Partnering to Protect Workers From Thermal Stress

The need to protect workers and communities from thermal stress has never been more urgent. The evidence is clear: heat- and cold-related illnesses are preventable, and we have the knowledge, technologies, and strategies to act. What remains is to establish a shared commitment by policymakers, employers, health professionals, and advocates to implement and advance these solutions.

Progress at the federal level, including OSHA's proposed heat standard, and new legislation in several states are promising signs. But further momentum will require coordinated advocacy and expert input. IHs and OEHS professionals will continue to play a central role, not only by leading program implementation on the ground, but by shaping policy with real-world insights and scientific guidance.

Addressing thermal stress is not solely about occupational safety. It's fundamentally about protecting public health and advancing equity. Protecting workers means safeguarding entire communities from disruption, injury, and economic hardship. By ensuring safe conditions for workers on the front lines, from farms and factories to stadiums and schools, we build resilience that benefits everyone.

We urge all readers to take action, whether they are employers, workers, health professionals, or policy leaders. Champion heat and cold stress prevention in your workplace and your networks. Most importantly, work with AIHA to support strong protections at the state and federal levels.

For more information or assistance with advocacy, policy development, or implementation, please contact **AIHA Government Relations** at gr@aiha.org.

The tools are available. The science is solid. Now is the time to act—together.

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Executive Summary:
Protecting Workers and the Public from Thermal Stress

Background

Thermal stress, which encompasses physical stress caused by both extreme heat and cold, is a growing public and occupational health crisis. It affects millions of U.S. workers annually and increasingly threatens other populations, such as student athletes and members of the public. Rising injury and fatality statistics, particularly linked to extreme heat, underline the urgent need for systemic intervention. As thermal stress-related occupational injuries increase annually, and costs associated with heat exposure are estimated at $1 billion per year, thermal stress is a critical workforce and economic issue. Climate change is significantly exacerbating temperature-related hazards, and days with extreme heat are increasing in frequency and intensity, especially in regions unaccustomed to them.

Despite longstanding awareness, thermal stress remains poorly managed due to limited risk perception, training deficits, and a patchwork regulatory landscape. Many supervisors and workers misjudge their tolerance for heat or cold, overlooking early signs of illness. The risk is magnified by climate volatility when more frequent heat waves and shifting seasonal norms outpace institutional preparedness. Vulnerable populations, such as pregnant workers, workers with medical conditions, older adults, and workers of color in high-exposure jobs, face disproportionate risks, often exacerbated by systemic inequities such as limited access to personal protective equipment (PPE), healthcare, or climate-controlled spaces.

Federal and State Policy Momentum

The Occupational Safety and Health Administration (OSHA) took a landmark step toward national regulation in August 2024, when the agency issued a proposed heat injury and illness prevention standard. If promulgated, this proposed standard would mandate that employers implement risk assessments, work-rest cycles, hydration protocols, and indoor and outdoor protections from extreme heat. However, political and regulatory uncertainty threatens the rule's finalization.

In parallel, state-level actions are accelerating. California leads with enforceable indoor and outdoor standards, and states such as Oregon, Washington, and Maryland have adopted similarly robust frameworks. Illinois, Arizona, and New Jersey are advancing bills to codify protections, including rest breaks and emergency rules. Even historically temperate states like Maine and Vermont are exploring legislative measures. This state activity reflects a growing recognition of thermal stress as an urgent and geographically widespread occupational threat to health.

High-Risk Industries and Environments

The effects of thermal stress are particularly acute in sectors such as agriculture, construction, manufacturing, public safety, food service, utilities, and warehousing. Both indoor settings, including bakeries, foundries, distribution centers, and outdoor workplaces, including farms, roadwork sites, and entertainment events, pose significant challenges.

Essential workers in these sectors often lack adequate ventilation, protective clothing, and access to recovery areas. Identifying these hotspots is crucial to targeting resources and inspections.

Prevention Through Comprehensive Programs

Effective thermal stress prevention requires layered and site-specific programs that integrate:

- **Risk assessments** using real-time metrics, such as wet bulb globe temperature (WGBT), heat index, and wind chill, to identify danger zones.
- **Engineering controls**, such as ventilation, climate control, shaded or heated rest areas, and automated warning systems.
- **Administrative controls**, such as shift schedules, acclimatization plans, and clearly defined work-rest cycles.
- **Frequent hydration and nutrition access**, including to water and electrolytes, nutritional support, and unrestricted restroom use.
- PPE and protective clothing, such as heat- and cold-adapted clothing, cooling vests, insulating layers, and education on proper use.
- **Training and surveillance**, such as multilingual and culturally appropriate education, wearable technology, pre-shift briefings, and continuous health monitoring.

These elements not only reduce health and safety incidents related to extreme temperatures but also improve productivity and morale. AIHA's Heat Stress App and related tools and guidance provide actionable templates for organizations seeking to proactively manage risk.

Role of Industrial Hygienists and OEHS Professionals

Occupational and environmental health and safety (OEHS) professionals, particularly industrial hygienists (IHs), are central to the implementation and sustainability of thermal stress programs. Their responsibilities include:

- Deploying advanced monitoring technologies and wearable diagnostics.
- Formalizing heat and cold stress prevention plans in environmental health and safety management systems.
- Coordinating with occupational health teams for surveillance and intervention.
- Advocating for the inclusion of scientific standards, such as the American Conference of Governmental Industrial Hygienists' Threshold Limit Values and the International Organization for Standardization's guidelines, as well as ethical, equitable use of protective resources.

IHs and OEHS professionals serve as critical liaisons between policy and practice, helping organizations interpret and apply technical guidance in real-world settings.

Policy Recommendations and Calls to Action

AIHA proposes nine policy priorities to address thermal stress holistically:

1. Finalize and enforce clear OSHA thermal stress standards.
2. Expand multilingual education and training.

3. Guarantee access to water, rest, sanitation, and recovery areas.
4. Require written hazard prevention plans across sectors.
5. Incentivize engineering and administrative control investments.
6. Support innovation in sensors, wearables, and cooling technologies.
7. Align with scientific evidence and consensus-based standards.
8. Center protections on vulnerable and historically marginalized populations.
9. Establish data systems for ongoing incident tracking and program refinement.

These recommendations are intended to drive evidence-based policymaking, protect at-risk workers, and embed resilience in workplace design and response.

Next Steps

The convergence of escalating climate threats, regulatory momentum, and increasing stakeholder awareness makes 2025 a pivotal year for addressing thermal stress. The tools, data, and guidance exist to create meaningful change. What remains is the need to take collective action. Regulators, employers, industrial hygienists, and community advocates must work together to implement robust protections across sectors and geographies. Doing so will safeguard health, equity, and economic resilience for generations to come.

For support or collaboration, stakeholders are encouraged to contact **AIHA Government Relations** at gr@aiha.org.

Member Communication Toolkit

AIHA has provided the template letter below to representatives and LinkedIn posts for members to use in advocating for and raising awareness on this critical issue.

Template: Letter to Representative

[Your Name]
[Your Professional Title]
[Your Organization / Affiliation]
[City, State, ZIP]
[Email Address]
[Phone Number]

[Date]

The Honorable [Full Name]
[Title]
[Office Address]
[City, State, ZIP]

Dear [Representative/Senator] [Last Name],

Subject: Urgent Support Needed for Protections Against Occupational Thermal Stress

As a member of the American Industrial Hygiene Association (AIHA) and a dedicated occupational health professional, I am writing to urge your support for stronger protections against thermal stress due to both heat and cold in the workplace. Heat is now the leading cause of weather-related deaths in the United States, surpassing floods and hurricanes. Exposure to cold temperatures continues to cause thousands of preventable injuries, particularly among vulnerable and low-wage workers. With increasing climate variability and rising trends in temperature-related injuries, the issues of extreme heat and cold are no longer seasonal or sector-specific. It is a year-round, nationwide threat to worker safety and productivity, as well as to public health.

In 2024, OSHA issued a proposed federal heat injury and illness prevention standard, an action that represented a landmark step forward in thermal protection. However, implementation of this standard remains uncertain. Meanwhile, states like California, Oregon, and Illinois are advancing their own laws, highlighting both the urgency of the issue and the need for consistent, enforceable national standards.

As a constituent and expert in this field, I respectfully ask you to:

1. Support the swift finalization and implementation of OSHA's heat standard, including legislative backing, if necessary.
2. Advocate for state-level standards that address both heat and cold exposure, particularly in sectors like agriculture, construction, and warehousing.

3. Champion funding for employer education, engineering controls, and protective technologies such as sensors and cooling personal protective equipment (PPE).
4. Put equity in the center of all thermal stress legislation by ensuring protections for outdoor, low-income, and historically underserved workers.

AIHA and its members are ready to assist in developing and implementing evidence-based policies that draw on decades of industrial hygiene science and practice. We stand committed to a vision of a world in which no worker suffers illness or death because of the temperature of their workplace.

Thank you for your leadership and attention to this critical public health matter. I would welcome the opportunity to discuss this further or to provide technical input to your staff as appropriate.

Sincerely,

[Your Name]
[Your Credentials, if applicable]
[Your Organization or Employer]
Member, American Industrial Hygiene Association (AIHA)

Template: LinkedIn Posts

LinkedIn Post #1: Highlighting the National Issue

Headline: Protecting Workers from Extreme Heat and Cold: A National Imperative

Body: As climate extremes become more frequent, thermal stress has emerged as one of the most urgent occupational health threats of our time. Whether it's agricultural workers in summer fields, teams in warehouses without air conditioning, or public service crews in freezing winter winds, the risks are growing.

That's why I support finalizing OSHA's proposed national heat standard—and why I believe every state should adopt strong, enforceable protections for both heat and cold exposure. If you're a safety professional, advocate, or employer, I encourage you to read AIHA's latest policy paper and join the effort to protect those on the frontlines. The science is clear. The tools exist. The time to act is now.

#IndustrialHygiene #OccupationalHealth #HeatStress #ColdStress #ClimateResilience #WorkplaceSafety #AIHA #OSH #PolicyMatters

LinkedIn Post #2: A Call to Fellow Professionals

Headline: Thermal Stress Is Preventable, Let's Lead the Way

Body: As industrial hygienists and occupational and environmental health and safety professionals, we know that thermal stress is not just a summer issue or a regional concern. It's a year-round, nationwide challenge made worse by climate change, inadequate protections, and systemic inequities.

From workers in foundries to those on farms, from student athletes to utility workers, millions of people face elevated risk from extreme temperatures every day. But we can make a difference.

✅ Stronger standards
✅ Smarter workplace programs
✅ Equitable access to protection
✅ Advocacy that drives change

AIHA's new thermal stress policy platform outlines exactly what needs to happen—from federal regulation to frontline practices—and how we as a profession can lead that change. Let's use our voices, our data, and our experience to advocate for a future in which no one suffers because of the temperature of their workplace. Join the conversation. Speak up. Take action.

#AIHA #OccupationalHealth #HeatIllnessPrevention #ColdStressAwareness #SafetyLeadership #IndustrialHygiene #ClimateAndWork #ProtectWorkers