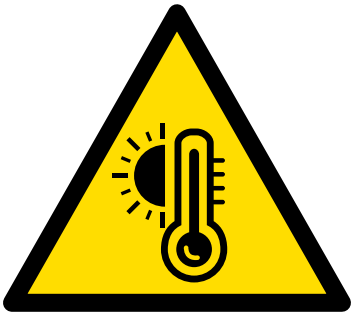
Workplace Safety & Prevention Services®

INFORMATION

HEAT STRESS: Special Considerations During Extraordinary Times



WSPS has created this resource to help address the issues of heat stress exposure within Ontario workplaces. With the addition of protective equipment that is sometimes used to limit droplet transmission during pandemic times, this year's summer weather may introduce new issues not commonly experienced by employers and employees.

The key is to reduce core body temperature of the worker in a hot environment. This resource will help bring perspective on this evolving issue through questions and insight. Heat Stress Management.

— A Practical Guide (June 2020)

QUESTION	RECOMMENDATION OR GUIDANCE
Recognition	
Is heat stress exposure an issue in your workplace?	Determine if there are sources generating heat or humidity within your workplace.
Is there equipment or material sources of heat or humidity in your workplace? I.e. hot processes like ovens, furnaces, or having to work outdoors in the sun.	Determine the contribution to heat exposure, speak to an occupational hygienist or a health & safety specialist.
Is there a hot weather plan or a heat stress plan for your workplace?	Determine through your health and safety coordinator or senior management that a hot weather plan exists, has been communicated and implemented.

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Have there been worker complaints or concerns expressed?	Check suggestion boxes, issues raised by employees or supervisors, JHSC minutes and inspection reports, and an incident or near-miss reports related to heat stress.
Assessment	
Have heat stress measurements (WGBT, Humidex) been taken in your workplace in the past? Are measurements taken currently/regularly?	If yes, what were/are the recommendations, and were/are they adapted into practice? If no, and there is a potential heat exposure, consider the implementation of recommendations into your workplace.
Are controls you have in place and working?	Assess if engineering controls and administrative controls such as cooling breaks and policies for heat stress are feasible and effective.
What is the general awareness of heat stress in your workplace? Do your supervisors and employees know and understand the symptoms?	This information is essential for work and at home to help recognize signs/symptoms to enable early intervention and action if needed. Information on heat-related illness is available through WSPS.CA. Communicate with management and workers on this issue to assess understanding of the issue.
Has the company completed a risk assessment to determine what areas/positions are at a higher risk of heat stress concerns?	Involve the JHSC or Health and Safety rep to complete a risk assessment of work areas and work positions to determine where and who is at higher risk of heat stress.

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Has the company determined the best method for assessing heat stress? (i.e. Humidex vs WBGT)	ACGIH and the MLTSD recommend using a WBGT any time there is process heat. If workers may have differing levels of work stress or load, a WBGT must be used. There are rare circumstances where humidex readings are appropriate. You may use humidex reading when the heat is associated with the environment only, and the workload is considered light. A competent person must conduct these measurements.
Is the equipment being used for heat stress monitoring calibrated and used in accordance with manufacturing instructions?	Check the manufacturing guidelines and ensure that equipment is being calibrated and used properly.
Controls	
Is there a response plan documented within the heat stress program? Do your supervisors and workers understand the response plan?	Ensure your hot weather/heat stress program includes a response plan when elevated readings occur and/or other environmental criteria have been met. Ensure that supervisors and workers understand the response plan and that it's well communicated.

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Engineering ▪ Is the equipment used for the cooling of employees and work areas operational and effective? ▪ Are pedestal fans, spot air-conditioning and area fans present and operational?* ▪ Is the cooling equipment adequate for the areas requiring cooling? ▪ Are cooling areas cooler than the heat containing work areas? Are they accessible? ▪ Is hot equipment insulated, screened or shielded? Is it required and used?	Consider checking the AC unit and it's effective and efficient in operation. Review where cooling units are used, and if they are inappropriate locations. In addition to the above recommendations, your workplace should consider protective equipment as part of a complete hazard assessment. Equipment is only effective if people understand its limitations and wear it correctly. Workers need to be trained in the fit, use, storage, cleaning, maintenance and limitations of the protective equipment that they wear. Workers must use protective equipment as required by their employer. Consider having your maintenance department (or technician) check if shielding, screening or reduction of heat sources is appropriate or possible.

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Administrative ▪ Are the existing heat stress plan and policy adequate to address issues in the workplace? ▪ Is training adequate for employees and supervisors to understand the heat stress policies, symptoms, and signs associated with heat stress? ▪ Have employees been trained in the precautions to take with hydration and diet? ▪ Are there policies and procedures to protect vulnerable employees, i.e. pregnant, ill/or on medications or with pre-existing medical conditions? ▪ Are routine quantitative workplace measurements taken during a hot day? ▪ Are cooling areas available and accessible to be used at defined intervals as outlined in the response plan? ▪ Is there a Respiratory Protection Program for employees required to wear filtering facepiece respirators? ▪ Are healthy lifestyles encouraged to reduce the risk of heat-related illness?	Use Humidex-based assessment tools or WBGT measurements to trigger the appropriate response to the changing conditions in the workplace. Understand that there are limitations to these measurements, and employee perception is a subjective factor that should be taken into consideration in the heat response.
▪ Are personal cooling devices used? Note: that these devices are not the first line of defence for heat stress and must only be considered as part of a full health and safety assessment to ensure their introduction does not introduce additional/inadvertent hazards.	**Personal Cooling** Consider evaluating the need and benefit of these devices and/or practices: ▪ Cooling vest (device) ▪ Fans and personal cooling at workstation ▪ Changing into dry clothing at breaks (work practice)
▪ Are employees using face coverings or masks or respirators/filtering facepiece that was not used in the past?	Review where they are used, if physical distancing is not feasible, and if other controls like barriers are in place and working.

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Evaluate	
Is the heat stress program being implemented effectively? Are the appropriate responses taken in accordance with the response plan?	Review the program before summer and make improvements when appropriate.
Are you seeing a lower trend in heat related illness and concerns after the communication, implementation and training of your hot weather program?	Review JHSC meeting minutes, suggestion boxes, incident reports, etc. to confirm that concerns are trending in a positive direction.

What We Know About Filtering Face Piece Respirators and Mask Use and Hot Environments

- Skin temperature covered by the respirator/mask does increase relative to the skin temperature outside of the covered area.
- Skin temperature increases with the use of face masks, the greatest increases are associated with the use of a N95 mask.
- The subjective perception of breathing difficulty and discomfort increased significantly with increasing thermal stress.
- An increase in perceived exertion rate was also associated with humidity, heat, breathing difficulty and overall discomfort while wearing facemasks, especially while wearing the filtering face piece respirator and during the speaking conditions.

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Summary

The use of face masks and respiratory protection is not linked to a significant increase in core body temperature. In general, the breathing resistance associated with N95 filtering facepiece respirators is higher when compared to surgical/procedure masks. Regardless, it may not be comfortable for the wearer to use these devices on hot days. The perception and feeling of discomfort should trigger administrative controls to ensure employees are more comfortable. Regular ventilation practices include opening doors/windows to reduce the buildup of exhaust fumes or other non-COVID-19 contaminants and control other hazards such as heat.

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