

# Working in Hot Conditions

## Managing work health and safety risks



Government  
of South Australia

SafeWork SA

**Heat stress and heat-related illnesses are serious and preventable. More than just 'feeling off', they can cause serious health issues, and in the case of heat stroke, can be fatal.**

This fact sheet provides practical advice for preventing heat illness and the health and safety risks arising from working in hot conditions. Typical workplaces may be outdoors, inside where it's hot, or where the work itself generates heat. Following are actions and measures to prevent or minimise the likelihood of heat illness.

### Heat illness

Heat stress can be caused by physical exertion outdoors in hot weather or working in hot, cramped work areas that have inadequate ventilation.

Heat illness occurs when the body cannot sufficiently cool itself. You absorb more heat from your environment than you can get rid of through perspiration or other cooling mechanisms. Factors that contribute to this include:

- amount of air movement
- clothing
- humidity
- physical activity (metabolic heat load)
- radiant temperature of surroundings
- temperature.

Heat illness covers a range of medical conditions that can arise when the body is unable to properly cope with working in heat. These conditions include:

- fainting
- heat cramps
- heat exhaustion
- heat fatigue
- heat stroke (a life threatening condition that requires immediate first aid and medical attention)
- rashes (also called prickly heat)
- worsening of pre-existing illnesses and conditions.

Signs and symptoms of heat illness include headache, nausea, dizziness, weakness, irritability, thirst, cramps and heavy sweating. Clumsiness, collapse and convulsions may also be experienced as a result of heat illness. Tellingly, skin can become cold and clammy, despite the heat.

Workers with these signs or symptoms need to seek immediate medical attention.

Work health and safety laws require working environments to be free of risks to health and safety, so far as is reasonably practicable. This includes illness from working in heat.

### Assessing the risk

There are several factors that need to be considered when determining if there is a risk of heat-related illness to workers and ways to protect them.

When identifying heat hazards and controlling these risks, workers likely to be exposed to heat, as well as any relevant Health and Safety Representatives, must be consulted.

### Identifying the hazards

Air temperature alone cannot be used to determine whether there is a risk of heat illness. The key risk factors that need to be taken into account include:

- air movement or wind speed
- air temperature
- humidity, in the environment or workplace e.g. laundries, mines
- radiant heat, from the sun or other source e.g. furnaces, ovens
- workload (nature and duration of the work)
- physical fitness of the worker, including acclimatisation and any pre-existing conditions e.g. overweight, heart/circulatory diseases, skin diseases, use of certain medicines
- clothing, including protective clothing e.g. overalls, coveralls, suits worn during chemical spraying.

### Controlling the risk

If there is a risk of heat illness at work, it must be controlled. Advice may be sought from a person competent in heat assessment who can provide recommendations about how the risk can be controlled.

Any assessment should include an appropriate heat stress index. A commonly recognised index is the Wet Bulb Globe Temperature (WBGT). The WBGT takes into account air temperature, radiant heat, humidity and air movement. Adjustments are also made to take into account things such as physical workload, clothing and work organisation.

If a risk of heat illness is identified, control measures need to be put in place. Workers considered at risk due to factors such as pre-existing conditions should be assessed by a doctor.

One method for minimising the risk of heat illness is to modify workloads and work times. This may include:

- arranging for more workers to do the job
- doing the work at a different location
- providing extra rest breaks in a cool area
- reducing time spent doing hot tasks e.g. job rotation
- rescheduling work so that heavy work and hot tasks are performed during the cooler part of the day
- using mechanical aids to reduce physical exertion
- wearing light clothing that still provides adequate protection.

Other measures for preventing heat illness to also be considered include:

- enabling workers to acclimatise
- keeping people away from hot processes
- providing cool drinking water near the work site – workers should be encouraged to stay hydrated by drinking a cup of water (about 200 ml) every 15 to 20 minutes during hot weather
- providing first aid facilities and access to medical help
- providing personal protective equipment (PPE) such as reflective aprons and face shields for reducing exposure to radiant heat
- providing outdoor workers with protection against ultraviolet exposure e.g. wide brim hat, loose fitting/ long-sleeved/collared (preferably cotton) shirt, long pants, sunglasses and sunscreen
- providing workers with information, instruction and training on how to recognise heat-related illness and appropriate first aid treatment
- providing adequate supervision of workers.

## Engineering controls

Engineering controls that could be considered include:

- increasing air movement using fans
- installing shade cloth to reduce radiant heat from the sun
- installing shields or barriers to reduce radiant heat from sources such as furnaces
- installing air conditioners or coolers to reduce air temperature and generate air movement
- insulating/enclosing hot processes or plant
- isolating workers from hot processes by locating them in air conditioned control rooms
- locating hot processes away from people
- removing heated air or steam from hot processes using local exhaust ventilation.

If symptoms occur, workers need to rest in a cool, well-ventilated area and drink cool fluids. If symptoms do not improve quickly, or skin is very hot and dry to touch, seek urgent medical help.

Plan ahead and ensure all necessary measures for preventing heat illness can be implemented when hot weather is predicted.

## Related health and safety problems

Apart from heat illness, hot working conditions may cause or contribute to other health and safety problems, such as:

- burns from contact with hot surfaces or substances
- errors/mistakes due to heat fatigue
- loss of grip while handling tools, objects and controls due to sweaty hands
- not following safe work procedures or cutting corners due to fatigue and/or discomfort
- not using PPE due to discomfort
- slips, trips and falls due to fainting or fatigue.

## Heat discomfort

Heat discomfort is what many people feel when it is hot. It is not a medical condition like heat illness and therefore is not considered a risk to health.

People who work in office type environments and those who do very little physical work are unlikely to be at risk of suffering heat illness. What they experience as a result of higher temperature and increased humidity is likely to be heat discomfort.

Heat discomfort can generally be managed by:

- increasing air movement
- providing access to cool water
- providing air conditioning (if practical)
- wearing suitable light, loose fitting clothing.

Thermal comfort is subjective, but generally conditions that are considered to be comfortable for people working indoors and doing light work are:

- air temperature (dry bulb temperature) of 23 to 26 degrees C
- relative humidity of 30 to 60 per cent.

## Further information

*Code of Practice – Managing the Work Environment and Facilities.* Available at [safework.sa.gov.au](http://safework.sa.gov.au).

*Heat Stress Standard and Documentation Developed for Use in the Australian Environment* – Australian Institute of Occupational Hygienists. Purchase at [aioh.org.au](http://aioh.org.au).

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