



HOT WORK may mean STOP WORK

PSA policy on heat and work, indoors and outdoors.

January 2001

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These guidelines are for the use of PSA members who may be required to work in hot conditions, or who are exposed to excessive heat and other adverse climatic conditions during their employment. The guidelines also cover situations involving both indoor or outdoor work.

HEAT-RELATED ILLNESSES

Working in high temperatures may affect the health of individual workers. The health effects which may result from working in hot conditions are often referred to as **Heat Stress**.

The effects of heat stress can vary with individual workers, the most extreme form of heat stress being known as **Heat Stroke**.

The most common occupational health effects arising from heat stress are as follows:

Skin rashes: The most common skin rash is known as ‘prickly heat’, which is identified by reddening of the skin, with associated ‘hotness’ of the affected area, or itch. Skin rashes can also be caused by blocked sweat glands. Wearing tight fitting under garments in hot weather will often cause localised skin rashes in hot and humid conditions.

Reproductive Disorders: Both male and female workers who are exposed to radiant heat, or required to work in extreme temperatures for long periods may suffer reproductive disorders, such as abnormal sperm counts, and birth deformities.

Affects on Existing Medical Conditions: Workers with heart problems, high or low blood pressure, respiratory conditions and kidney disease, may be ‘at risk’ when working in hot conditions. As a rule of thumb, any worker who suffers from a permanent or temporary medical condition requiring continuous medication, or treatment, may be at risk when required to work in hot conditions.

SYMPTOMS

As previously indicated, the most dangerous form of ‘Heat Stress’ is **Heat Stroke**. This condition can be recognised by the following symptoms:

- Hot, dry skin.
- Lack of muscle control
- Increased body temperature.

Unfortunately, when the latter symptoms appear, the person may be very close to a physical collapse, or even death. It is very common for persons suffering from Heat Stroke for the condition to overcome them very quickly, without any warning.

There is also an associated symptom which may also occur referred to as ‘muscle meltdown’, where the victims muscular system may degenerate as a result of Heat Stroke. This condition is also associated with rapid increased body temperature.

The most common Heat Related illnesses are **Heat Exhaustion** and **Heat Cramp**. However, if not given early successful treatment, these conditions may deteriorate to **Heat Stroke**.

Heat Exhaustion is characterised by physical fatigue, headache, giddiness, nausea and vomiting. The condition is due to the body losing fluid through abnormal perspiration. **Heat Exhaustion** can cause the person affected to collapse.

Prior to the full effects of **Heat Exhaustion**, the person may also suffer from the effects of **Heat Cramp**, which results from abnormal perspiration, resulting in the body losing excess water and electrolytes such as sodium and potassium. This may initially cause cramps in the arms, legs and the body.

ACCIDENT RISKS

Workers may also put themselves, and others at risk, when working in hot conditions by:

- Failing to use protective clothing or equipment (PPE) due to personal discomfort.
- Reduction of the efficiency of some forms of PPE in hot conditions, e.g. safety glasses.
- Excessive perspiration may cause result in workers failing to control plan or equipment safely.

The effect of heat on the human body is influenced by a number of climatic and personal factors, which include:

CLIMATIC

1. Radiant heat.
2. Air temperature.
3. Air movement.
4. Humidity.

PERSONAL

1. Intensity, or level of work activity
2. Type of clothing worn.
3. Worker acclimatisation.
4. Body water and electrolyte balance.
5. Personal health.

RISK ASSESSMENT

The following General Principles should be applied by employers if their employees are either required to work under hot climatic conditions, or who may be exposed to hot climatic conditions, UV radiation, and glare.

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Each Employer, or person in control of a place of work, where employees carry out any form of work, is required to carry out a risk assessment to determine if any risk to any employee, or any other person's health, safety and welfare can arise from:

- Exposure to any source of heat including radiant heat, UV radiation, or glare occurring through natural sources, or artificially generated, or which may result from, or be caused by a work process, work practice, or the operation or use of plant at a workplace.

A risk assessment must include, but not necessarily be limited to:

- temperatures workers are exposed to, or likely to be exposed to, at a place of work.
- the level of exposure to employees from UV radiation.
- humidity, ventilation and average air movement rate.
- radiant heat, which includes hot work processes, and heat generated by plant or equipment.
- the rate and nature of the work.
- the health status of employees who are likely to be exposed to high temperatures, and associated climatic conditions, or UV radiation at their place of work.
- provision of appropriate protective clothing, skin and eye protection, and first aid requirements, to prevent any physical or physiological injury arising from a heat related illness, or exposure to heat and/or radiant heat or glare, at a place of work.
- appropriate work/rest procedures at a place of work to prevent the incidence of heat related illness.
- information and training, including survival training, to managers, supervisors and employees on the identification of adverse health symptoms arising from hot climatic conditions, and exposure to heat, radiant heat, UV radiation, and glare.
- acclimatisation procedures suitable to prevent the incidence of heat related illness.

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On completion of a risk assessment, the employer or person in control of the workplace, shall be required to control or eliminate any risk to the health, safety and welfare of employees and other persons at the workplace arising from hot work, or exposure to radiant heat, UV radiation and glare.

CONTROL MEASURES

In adopting a risk control strategy, the employer must take into account the following Working Environment controls to minimise heat related illness:

- Air conditioning of premises or plant, including motor vehicles.
- Isolation, or physical protection, from radiant heat, hot plant, or equipment
- Insulation of the workplace.
- Forced air ventilation.
- Window tinting and glare control

- Work organisation and activities.
- Personal protection.
- Any other identified risk control measure.

For the purposes of these guidelines, and applying the **Control Measures** systematically and in greater detail, workplaces are divided into **outdoor** and **indoor work**.

Outdoor work

Generally, workers involved in outdoor work are at greater risk from adverse climatic conditions. **The ‘trigger temperature’ for remedial action for outdoor work recommended is 30 degrees Celsius.** If temperatures reach, and are sustained at this level for 2 hours, or more, the following procedures are recommended to be followed.

30 - 32 degrees Celsius:	10 minute break per hour from outside work.
32 - 35 degrees Celsius:	15 minute break per hour from outside work
35 - 36 degrees Celsius:	30 minute break per hour from outside work.
37 degrees Celsius, plus:	cease outside work until a sustained temperature decrease.

The above temperature/ rest formula applies to light, or very moderate physical activity. If the work involves any type of heavy work and/or rapid physical activity, the rest ratio in the formula must be increased by a minimum of 50% for each temperature range.

Any rest breaks, or cessation of work, during normal working hours shall be paid work time.

(37 degrees Celsius is a critical temperature, as workers who are required to carry out reasonably active physical work at this temperature, or above, irrespective of acclimatisation to high temperatures, will be at significant risk of increasing their body temperature to the point where they are in danger of Heat Stroke.)

In these conditions, the following provisions should also apply for workers who are carrying out outdoor tasks in the above temperatures:

- Rotation of tasks to minimise periods of prolonged physical activity.
- Rescheduling harder physical tasks, and/or tasks involving the use of PPE, to cooler periods of the day.
- Provision of iced water, and where necessary liquid electrolyte replacement.
- Provision of an air conditioned lunch, or rest room for scheduled work breaks where temperatures below 25 degrees Celsius can be maintained.
- Provision of a First Aid kit, with appropriate instructions and treatment for heat related illness.(First Aid staff should be given appropriate training in providing initial treatment for heat stress conditions.)
- Provision of suitable lightweight radiant heat reflective clothing, headwear, UV radiation skin protection, and sunglasses.

Indoor Work

Indoor work can be sub-divided into Indoor Work (non-air conditioned) and Indoor Work (air conditioned). Indoor Work (non-air conditioned) includes work which is carried out outside an office or workshop environment, involving the use of motor vehicles and other forms of plant or equipment.

Indoor work (non-air conditioned)

The most effective temperature range for Indoor Work during Summer months, where air conditioning is not provided is 21-24 degrees Celsius. This temperature range is recommended by WorkCover as the optimum temperature range.

The recommended ‘trigger temperature’ for remedial action for this type of indoor work is 26 degrees Celsius. However, other factors need to be considered in this type of working environment, which may affect an individual workers health, such as humidity, ventilation, air movement, and air quality. **These factors cannot be overlooked when conducting a risk assessment of these conditions.**

In temperatures of 26-30 degrees Celsius, to maintain comfortable working conditions, the following procedures should be followed:

- Provision of sufficient fans to provide adequate ventilation and air movement in the working environment. This may mean provision of individual fans to workers.
- Provision of, or access to, an airconditioned first aid room.
- Provision, or access to, an air conditioned lunch room.

For temperatures over and above 30 degrees Celsius, the procedures set out for **Outdoor Work** should be followed.

It should be noted that depending on the insulation, and construction material used in buildings and structures, it is not uncommon for the temperature in non-airconditioned premises to exceed the external air temperature in periods of excessive heat. In addition, once a building ‘heats up’, depending on the construction and insulation, it may retain heat for some period of time.

In motor vehicles, and other movable plant and equipment, which are not fitted with air conditioning, the combination of engine heat and heat retaining construction and insulation materials can often result in cabin temperatures of 10-15 degrees Celsius in excess of the outside air temperature in hot conditions.

Indoor Work (air-conditioned)

The principles for indoor work in air conditioned environments vary from the previous types of work, as these guidelines cover circumstances where there may be a temporary, or complete failure, of a workplace air conditioning system. In such an event, the occupational health problems that can arise may result from problems caused by heat, ventilation, and air quality, or any combination of these three factors.

These guidelines recommend that employers adopt the following risk assessment strategy for air conditioned workplaces.

An employer, or person in control of a workplace, where the temperature and ventilation is fully controlled by an air conditioning system, shall carry out a risk assessment at the workplace. This assessment shall include procedures to be adopted to protect and maintain the health, safety and welfare of employees, and other persons, at the workplace in the event of a total failure of the air conditioning plant, and ventilation system for a period in excess of one hour, having regard to external climatic factors, and the effect on the air quality at the workplace, resulting from the failure of the air conditioning system.

In typical office buildings built over the past two decades, air conditioning systems provides

the only form of ventilation to the building, as the windows generally cannot be opened. Air conditioning systems usually operate to exchange 10-20% of the total air volume in the building in each cycle, and depending on the size of the building and the capacity of the air conditioning system, a single cycle may be 1-2 hours duration, or more. Obviously, with a poorly operating system, or in the event of a complete failure, air quality is of equal importance to temperature and ventilation control.

Therefore, the following Risk Controls are detailed under these guidelines deal with either complete, or partial air conditioning system failures.

In the event of a complete failure of the air conditioning system, which will result in a rapid deterioration of building air quality, **it is recommended that the workplace be evacuated until the air conditioning system is fully, or partially operational as the appropriate Risk Control measure.**

If the failure to the air conditioning system **only** involves the temperature control, and the system can continue to adequately ventilate and clean recycled air efficiently without compromising air quality, and maintain temperatures in so far that the internal temperature does not exceed the external temperature, it is recommended that the control procedures detailed for **indoor work (non-air conditioned)** be followed. If these conditions cannot be met, the building should be evacuated until the air conditioning system is fully operational, or sufficiently operational to maintain safe working temperatures and acceptable air quality within the workplace.

It is important that members appreciate that if the employer cannot maintain a safe and healthy working environment, they place their employees' health at risk. In the event of a building evacuation, it is an equal responsibility for the employer to either direct employees to an alternative temporary workplace, or make arrangements for them to work from home until the air conditioning system can be repaired.

The ideal Summer working temperature range for air conditioned office buildings, recommended by WorkCover as the optimum temperature range is 21-24 degrees Celsius.

YOUR RIGHTS

What Rights do Workers have if they are 'At Risk' from working in hot conditions, or in the event of major air conditioning problems?

Firstly, and most importantly, if you are working in any 'at risk' situation, you have a right to complain to your employer, WorkCover, and the PSA, without prejudice to yourself.

If your employer has carried out a proper risk assessment, as described, and has sufficient controls, or control strategies in place to deal with any risks arising from hot work, and associated workplace problems, your health will should not be at risk.

If your employer has not carried out a risk assessment, and has no appropriate controls to deal with hot work, and associated workplace problems, they face immediate problems with WorkCover, if WorkCover become involved.

They also face immediate problems with the Association for the same reason, and the

Association will be very quick to act on members' complaints.

However, your continued good health is also your most important consideration. If you believe that your health is at risk, or an existing health problem may be badly affected, due to hot work and associated workplace problems, you do have a responsibility to safeguard your own health.

The Association strongly recommends that in such circumstances members should report sick, visit your Doctor explaining your symptoms and circumstances, and request a medical certificate and WorkCover Certificate to cover your absence. You should not report back to work until it is safe to do so, and you should claim for any absence and medical treatment costs under Workers' Compensation.

More Info?

These Guidelines should be kept for future reference, but if further information or advice is required, contact your Association Industrial Officer, Organiser, or Regional Organiser, and remember - **Hot Work may mean Stop Work.**