Sheffield Occupational Health Advisory Service (SOHAS)
Working to Prevent and Alleviate the Effects of Work on Health
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Feeling the heat

AS THE WEATHER GETS WARMER, workers in all industries suffer. High temperatures put your health at risk. Whatever the thermometers read, if most people are complaining of the heat, common sense says that it is too hot and something must be done immediately.

Your employer must take steps to ensure a comfortable working temperature, or if all else fails, provide breaks in a cool area and cold drinks.

What is an acceptable temperature?

The TUC and several trade unions have been campaigning for a legally enforceable maximum temperature of 27-30 degrees Celsius. They say extreme heat is as bad for you as extreme cold. Heat stress can start at temperatures above 25 degrees Celsius.

The World Health Organisation recommends 24 degrees C as the maximum temperature for working in comfort.

According to current regulations "employers must maintain a reasonable temperature in the workplace."

Feeling too hot at work?

What is the temperature? Ask your employer for a thermometer.

For some workers, heat can be a problem all the year round. For example people who work in:

- boiler rooms
- bakeries and kitchens
- laundries
- foundries and steel works
- glass and rubber manufacturing
- brick-firing and ceramics plants
- power plants

It is not uncommon for offices and other indoor workplaces to record temperatures above 30 degrees Celsius during a hot summer. Banks of computers and VDUs create extra heat. The Display Screen Equipment Regulations 1992 require that "equipment shall not produce excess heat which could cause discomfort to users."

Outdoor workers

Outdoor workers, for example, construction and highway workers, farmers, gardeners, traffic wardens, rangers and policemen, who are exposed to high temperatures for long periods are more at risk from sunstroke, sunburn, and heat exhaustion, especially when work is physically heavy.

"A sufficient number of thermometers must be provided to enable workers to check temperatures at work."

– Workplace (Health Safety and Welfare) Regulations 1992.

The effects of high temperatures are made worse by other conditions at work. Heat stress is more likely if

- **The air is humid.** Workers in steamy laundries and kitchens are more at risk.
- **The air is very still.** Ventilation or fans must give a good enough flow of air to help the

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The Chartered Institute of Building Services Engineers recommends these comfortable working temperatures for summertime:

Offices:
22-24 degrees C

Hospital wards:
23-25 degrees C

Warehouses:
16-23 degrees C

Canteens:
21-23 degrees C

Dining rooms:
21-23 degrees C

Shops/showrooms:
21-23 degrees C

TV studios:
21-23 degrees C

evaporation of sweat from skin, to cool the body.

- **There is direct heat radiation** from hot surfaces, bright lights or the sun.
- **Work is physically demanding.** The more energetic the work, the lower the temperature needs to be to work safely.
- **You are exposed to hot conditions** for longer periods.

A more accurate method for measuring temperature

The Wet Bulb Globe Temperature Index takes the effects of humidity and radiant heat into account. More information from the HSE.

Other sources of heat

During hot weather bakers are also exposed to ovens, foundry and steel workers to furnaces, kitchen and canteen workers to cookers and hot food, musicians to hot lights, office workers to banks of computers.

The HSE in its *Guidance: Health and safety in kitchens and food preparation areas* advises: "in kitchens where the temperature or humidity is persistently high the advice of a ventilation engineer should be sought."

Protective clothing can add to heat stress

Tight fitting or heavy protective clothing or uniforms can lead to heat stress.

The Personal Protective Equipment at Work Regulations 1992 require employers to select PPE that is suitable for the risks, for the employees who will be using it, and for the working environment. Where PPE has to be worn in hot weather, it should be designed to allow workers to keep as cool as possible. Specialised personal protective equipment is available which incorporates, for example, personal cooling systems or breathable fabrics.

Very high temperatures

From time to time workers are exposed to extremely dangerous temperatures above 40 degrees C, when equipment breaks down in ovens, kilns or furnaces or when fighting fires. It is essential that employers develop a safe system of work, using specially trained workers, with permits to work, health checks, very brief exposure to hot conditions, suitable protective clothing, mechanical aids to minimise physical exertion, and a rescue system. The workers need to learn how to take their pulse, and to refuse to continue if their pulse rate rises above 110 after one minute at rest. *"Precautions for Kiln Wreck Clearance" HSE publications.*

Heat stress

Too much heat causes fatigue, and can cause extra strain on the heart and lungs. The HSE's expert on heat stress says "It is potentially very serious but it is also preventable. So it is important that people know what it is, can recognise the signs, and have some idea of what they can do to reduce the risks."

For instance some one wearing protective clothing, when removing asbestos, and carrying out heavy work in hot and humid conditions, will suffer from heat stress and could suffer heat stroke.

Very hot weather can have the same effect on out door workers.

In 1995 a 38 year old man collapsed and died of heat stroke when working as an asphalter on

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—HSE expert on heat stress

the hottest day that summer, when the temperature rose to 34 degrees Celsius. After a coroner's verdict of accidental death, the HSE pledged to issue warnings to companies about the dangers of working in hot outdoor conditions in summer.

High temperatures defeat the body's ability to cool itself down to normal body temperature. Internal body temperature can then rise dramatically and dangerously. First aiders should be trained in the recognition of the symptoms of heat stress and what to do about them.

Pregnant women suffer from the heat more. Employers have a duty to assess the risks at work to new and expectant mothers, including working in extremes of heat. They must protect women by making changes to their working conditions or working hours, or by providing suitable alternative work, or if necessary, paid suspension from work. For example priority should be given to pregnant women for extra rest and early finish times when the weather is very hot. Management of Health and Safety at Work Regulations 1999.

The symptoms of heat stress to watch out for

- Inability to concentrate,
- Clammy skin,
- Rapid pulse,
- Muscle cramps, nausea and vomiting,
- Heat rash, 'prickly heat',
- Headache and blurred vision,
- Dizziness and fainting,
- Fatigue and light-headedness,
- **Severe thirst:** a late symptom of heat stress, and
- **Heat stroke:** hot dry skin, confusion, convulsions and loss of consciousness. ***This is the most severe disorder and can result in death if not treated.***

It takes at least 30 minutes to cool the body once it has become overheated. If a person collapses due to heat stroke call for an ambulance.

Heat stress can be prevented

Employers must comply with the *Workplace (Health, Safety and Welfare) Regulations 1992*:

'workplaces must be adequately ventilated' (regulation 6)

'during working hours the temperature in all workplaces inside buildings must be reasonable' (regulation 7)

'the temperature in workrooms should provide reasonable comfort without the need for special clothing. Where such a temperature is impractical because of hot or cold processes, all reasonable steps should be taken to achieve a temperature which is as close as possible to comfortable.' (Approved code of Practice) eg

Insulate hot pipes and equipment.

Provide **air cooling plants** which are well maintained and do not break down in a heat wave.

Shade windows.

Site workstations and control panels **away from hot areas**.

Use **fans** and **increased ventilation** in hot weather. But above 27 degrees C fans are ineffective at cooling the air.

Provide **local cooling** at workstations.

Ensure **windows** can be opened.

Treat some one suffering from heat stress immediately!

- Move them to a cool place to rest.
- Give them cool water to drink.
- Remove unnecessary clothing, hard hat, boots, shirt.
- Shower or sponge them with cool water.

Look after yourself …
it is very important to replace lost fluid.

Drink before you get thirsty

If you are hot, drink a cup of **cold water** every 15-20 minutes

Make sure **fluid** is always nearby

In a hot, dry environment you may not realise you are sweating but you will be losing water, so make sure you **drink enough**.

Salt tablets should not be taken, **drinking water** will not give you stomach cramps.

In unavoidably hot work areas, limit the amount of time spent in the heat, **rotate hot jobs**.

Employers must provide cold drinking water and should:

- provide cool, shaded rest areas for outdoor workers and indoor workers,
- timetable more frequent breaks when people can rest in a cool area,
- provide hats that shade the face, ears and neck for out door workers,
- provide the correct sunglasses to prevent glare out doors, and
- provide high factor sunscreen (at least 15 SPF).

They should also

- use flexible working eg early starts to the working day,
- shorten the working day during very hot weather,
- shade outdoor work from the sun with an awning or canopy,
- organise work so that various tasks eg maintenance, is carried out before a hot production process starts,
- relax dress codes during hot spells, or provide light cotton summer work wear, and
- take the hottest rooms out of service during a heat wave.

The Construction (Health, safety and Welfare) Regulations 1996 require protection from adverse weather at any outdoor place of work.

Ventilation

The ventilation system should remove and dilute warm, humid air and provide air movement, to create a sense of freshness without causing a draught.

If workplaces contains hot equipment or sources of dust, fumes or vapours, more fresh air will be needed to provide adequate ventilation. Humidity and air movement levels should be enough to prevent discomfort or sore eyes, especially if VDUs are used.

Useful information

1. *Thermal comfort in the workplace: guidance for employers* HSG194 HSE (1999)
2. *Sun protection: advice for employers of outdoor workers* INDG337 HSE (2001)
3. *Heat stress in the workplace. What you need to know as an employer* HSE (2003)
4. *New and expectant mothers at work: a guide for employers* HSG122 HSE (2002)
5. *Workplace health, safety and welfare: a short guide for managers* INDG244 HSE (2002)
6. *The selection, use and maintenance of molten metal protective clothing* HSE (1996)

HSE website: www.hse.gov.uk

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