



Cold work

Millions of outdoor workers face cold conditions in winter and much of autumn and spring in Britain. Cold store workers in the food industry regularly face extremely cold conditions all the year round. But **all workers can experience problems because of cold temperatures**. They become uncomfortable when the heating cannot cope in cold weather, or they work next to doorways which are open to the outside weather. Workers in extremely cold outdoor or indoor conditions are usually aware of the hazards to health of exposure to cold, and take sensible precautions if they possibly can. But we are all **at risk at times when the temperature falls below 10°C, especially if conditions are also wet or windy**.

How cold is too cold? What is a comfortable temperature?

The acceptable temperature for **comfort** for most kinds of work lies between **16°C and 24°C**. For physically heavy work, when the body generates a lot of heat, **13°C** can be more comfortable.

What the law says

The Workplace (Health, Safety and Welfare) Regulations 1992 requires employers to ensure that **“During working hours, the temperature in all workplaces inside buildings shall be reasonable”** (Regulation 7).

The Approved Code of Practice defines a **‘reasonable temperature’** as one that provides reasonable comfort without the need for special clothing:

- The temperature in workrooms should normally be **at least 16°C**, (or **13°C** if much of

the work involves **physical effort** to the extent that a temperature of 16°C would be uncomfortably warm).

- Where such a temperature is impractical to maintain, for example:
 - in rooms that have to be **open to the outside**,
 - or where **food** or other products have to be kept cold, the temperature of the workroom should be **as close to 16°C as is practical**.
- Where a reasonably comfortable temperature cannot be achieved throughout a workroom, employers must provide local heating.
- Also self-closing doors or other draught excluders. Insulated duckboards or other floor coverings should be provided for workers who have to stand for long periods on cold floors.
- The temperature in sanitary facilities and rest rooms should

The Chartered Institute for Building Services Engineers

recommends the following temperatures for different working areas:

Heavy work in factories	13°C
Light work in factories	16°C
Hospital wards and shops	18°C
Offices and dining rooms	20°C



also be ‘reasonable’. Changing rooms and shower rooms should not be cold.

- Temporary heating should be provided when people are required to work in normally unoccupied rooms, like storerooms.



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Shivering bodies, numb fingers and mental confusion “workers need to remember that cold is not just uncomfortable – it may affect their health and their judgement.” – HSE

Cold stress and cold injury

You may suffer from more colds, attacks of bronchitis and asthma, or painful, stiff joints, and fatigue as you use your energy to try to keep warm. You are also more likely to develop vibration syndrome of the hands if you are using pneumatic or vibrating tools.

Frostbite, occurs when your body tissues freeze. This happens when the temperature of the skin reaches -1°C . It can happen at temperatures above freezing if you are wearing **wet clothing**, or the skin is in contact with **frozen food, metal objects** or **super cooled liquids**.

Nose and ears, fingers and toes are the commonest parts of the body to be affected. The first symptom is numbness, the skin becomes pale, and feels very cold. It is not always painful.

Anyone with symptoms should be taken indoors and warmed up slowly. Sudden warming, say by putting your hands or feet near a fire or rubbing them vigorously can make the damage worse.

If exposure to freezing conditions is prolonged for more than 12 hours, damage to the tissues can be irreversible, and in the worst cases there can be loss of an area of skin or amputation of fingers and toes.

Hypothermia, is when body heat is lost faster than it is produced. Prolonged exposure to cool

temperatures (even above 0°C), or falling into cold water can lead to hypothermia. It is particularly insidious as the sufferer does not always realise they are in danger, until they actually collapse. When you are busy with work you may ignore the first symptoms. It can lead to coma or death if the body temperature falls below 32°C .

Signs to watch out for in yourself and your colleagues:

- Persistent severe shivering.
- Fatigue, incoordination, drowsiness, apathy, hallucinations and resistance to aid.
- Skin may go blue, or later, pale, cold and dry.
- As body temperature drops, shivering stops and muscles become rigid.
- Breathing and heart rates become slower.
- Finally loss of consciousness.

The early stages of hypothermia must be treated, by moving the person to a warm place, and warming them up slowly, even if they resist your help.

Call an ambulance straight away if the person becomes unconscious.

Older workers and people with heart disease are at increased risk of a **heart attack**.

Mental alertness: The first effect of mild cold exposure is that reaction times gets slower, and the time taken to complete tasks increases. Manual dexterity deteriorates. Concentration gets worse and there is an increase in the number of **accidents and mistakes**.

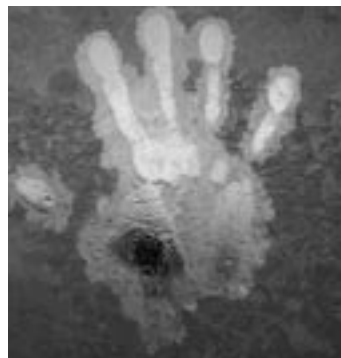
Wind chill: Wind blows away warm air your body creates around you.

“Workers are exposed to greater danger on a cold windy day than on an equally cold, calm day.

Workers are particularly at risk from cold when the temperature around them is below 10°C .

When the air temperature is 10°C , and the wind speed is 20 miles per hour, the effective temperature, so far as the body is concerned, drops to 0°C .

A temperature of about -1°C drops to about -9°C with a wind speed of 10 miles per hour.”
HSE Construction Industry Advisory Committee



“Sprout pickers’ attitude to frostbite is that they do not worry when the cold causes pain – it is when they cannot feel their fingers that they are concerned.”

–A Bedfordshire GP

Keeping food cold and 'fresh'

In the **food industry** workers can spend up to 7 hours preparing and processing food, in temperatures between 4° C and 12° C, and 5 hours per shift in temperatures as low as -24° C in storage freezers. Workers in catering and food preparation work are increasingly being expected to work in colder conditions. In supermarkets, refilling freezer cabinets, or working at checkouts near the shop exit can be uncomfortably cold work.

"Food businesses will need to determine how the requirements of food safety law can be achieved while maintaining **reasonable temperatures in the workroom**. There is not a conflict in law. Generally food hygiene law regulates the temperatures of food while health and safety law regulates the air temperature of the workroom." HSE *"Workroom temperatures in places where food is handled"* 1995

A reasonable workroom temperature can be maintained by:

- Enclosing or insulating the product eg enclosed chilled hoppers or conveyors, chilled booths or tables.
- Keeping the chilled areas as small as possible.
- Pre-chilling the product.
- Exposing the product to workroom temperatures as briefly as possible.

If a reasonable workroom temperature cannot be maintained, provide a **warm workstation** within a room where the overall temperature may be lower. If necessary keep the person warm by providing:

- Suitable **protective clothing**.
- Easily accessible **heated rest facilities**.
- Task rotation to **minimise the length of time** spent in uncomfortable temperatures.
- **Local heating in vehicle cabs** in cold stores.

Cold offices and factories

'Bosses urged to turn on the heating before the big return to work'

The TUC called on employers to make sure that the heating in their offices, shops and factories is turned back on early enough to ensure that their workplaces reach the minimum legal temperature before staff start back after the Christmas and New Year shut down. 'Returning to a bitterly cold workplace is no joke, all employers need to do is to arrange for someone to come in a day early and turn the heating back on.' TUC 3 January 2005.

16°C is too cold for comfort for work which is mostly done sitting down.

Feeling cold can lead to increased muscle tension, and awkward working postures with hunched shoulders. Your hands and fingers lose a lot of heat in cold conditions. Fine, delicate and fast finger movements deteriorate when finger temperature drops by a few degrees.

Thermometers should be available to people at work to enable temperatures to be measured throughout the workplace.

Harmful and offensive fumes

Heating systems should be installed and **maintained** so that combustion gases do not enter the workplace. Portable gas heaters must not produce harmful or offensive fumes.

Temporary heating appliances can be a fire risk

Old electric heaters brought in to warm the office or workshop are rarely tested, and can be the cause of fires. So can portable bottle gas heaters. Drying out wet clothing on space heaters is also dangerous, and there should be provision for hanging and drying wet clothing.

Warehouses: The Approved Code of Practice specifies that if the workroom cannot be kept at a 'reasonable' temperature because doorways have to be kept open to the outside, local heating should be provided. *Workplace (Health, Safety and Welfare) Regulations 1992 ACOP HSE L24*

Outdoors – safe work in cold weather

For workers in construction, especially roofers or workers on bridges, high buildings or large steel structures, highways maintenance, utilities maintenance, mail delivery, fishing and farming, **risk assessments** must be carried out by employers (*Management of Health and Safety at Work Regulations 1999*)

- Can work be scheduled for warmer weather, or can it be done indoors.
- Employ extra workers to shorten the exposure to cold.
- **Measure wind speeds:** this is often part of the safety procedure for assessing whether cranes can be used without risk, and should be part of assessing dangerously cold weather conditions. Avoid work in high winds whenever possible.
- Provide wind and rain shielding. Working practices should include measures to be taken in **poor weather**.
- Allow **more time** for each task, consider the ‘hobbling’ effect of protective clothing, and plan to reduce the cooling effect of sweaty clothing.
- There should be systems to **check on people** working in cold conditions.
- **Prepare for vehicle breakdowns**, with warm clothing, gloves and blankets as well as a hot drink and normal emergency supplies.
- Workers should be trained to recognise the **symptoms of overexposure** in themselves and their colleagues. Any worker shivering severely should come in out of the cold.
- **Metal handles** should be insulated, controls should be

UNACCEPTABLE CONDITIONS

In wet, windy or extremely cold conditions all but emergency outdoor work should be stopped.

designed for using with gloves on. Cold metal surfaces should be labelled.

Emergency work

During the winter it is foreseeable that emergencies will occur. Water pipes burst, power cables collapse, roads are blocked. Staff employed to undertake emergency repairs must be protected from dangerous conditions by well planned and organised working procedures.

Shelter, welfare facilities and breaks:

Regular, frequent, warm up breaks in a heated cabin, which is easy to get to, are essential, especially in windy or wet conditions. It must be easy to remove wet or sweaty clothing.

Facilities to make hot food and drinks

must be provided. A hot drink warms up the body, a fast method of first aid for some one suffering from the cold.

Warm water for washing helps rewarm cold hands. There must be facilities for changing, drying and storing protective clothing. Wet or sweaty clothing cools down the body fast.

Cold and wet weather clothing

must be provided by the employer (*Personal Protective Equipment at Work Regulations 1992*).

- Loose clothing with several layers provides better insulation.
- Polypropylene next to the skin removes sweat.
- Hats, hoods or balaclavas must fit under hard hats.
- Waterproof or wind resistant fabrics may be essential.
- Gloves should be worn where fine manual dexterity is not required and the temperature drops below 4°C for light work, or below -7°C for heavy work. Mittens or heated gloves are better in severe cold.
- Fine work performed with bare hands at 16°C or less for more than 10-20 minutes needs special measures to keep hands warm, eg warm air jets, or contact warm plates.

Useful information

1. *Workplace (Health, Safety and Welfare) Regulations 1992* and the Approved Code of Practice and Guidance L24 HSE.
3. *Workroom temperatures in places where food is handled*. HSE Information Sheet, Food Sheet No 3.
3. *Cold Stress* Construction Safety Association of Ontario Magazine, Winter 2000-2001. <http://www.cdc.gov/elcosh/>