

NEBOSH GC 2

Study notes

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GC2

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Element 1 - Workplace hazards and risk control

Learning outcomes

-  Outline common health, welfare and work environment requirements in the workplace
-  Explain the risk factors and appropriate controls for violence at work
-  Explain the effects of substance misuse on health and safety at work and control measures to reduce such risks
-  Explain the hazards and control measures for the safe movement of people in the workplace
-  Explain the hazards and control measures for safe working at height
-  Outline the hazards and control measures associated with works of a temporary nature.

1.1 Health, welfare and work environment requirements

1.1.1 Health and welfare provisions

Welfare

Welfare arrangements include the provision of sanitary conveniences and washing facilities, drinking water, accommodation for clothing, facilities for changing clothing and facilities for rest and eating meals.

Sanitary conveniences and washing facilities must be provided together and in a proportion to the size of the workforce. Guidance is available on the requisite number of water closets, wash stations and urinals for varying sizes of workforce (approximately one of each for every 25 employees). Special provision should be made for disabled workers and there should normally be separate facilities for men and women. A single convenience would only be acceptable if it were situated in a separate room whose door could be locked from the inside. There should be adequate protection from the weather and only as a last resort should public conveniences be used. A good supply of warm water, soap and towels must be provided as close to the sanitary facilities as possible. The facilities should be well lit and ventilated and their walls and floors easy to clean. It may be necessary to install a shower for certain types of work. Hand dryers are permitted but there are concerns about their effectiveness in drying hands completely and thus removing all bacteria. In the case of

temporary or remote worksites, sufficient chemical closets and sufficient washing water in containers must be provided.

All such facilities should be well ventilated and lit and cleaned regularly.

Drinking water must be readily accessible to the entire workforce. The supply of drinking water must be adequate and wholesome. Normally mains water is used and should be marked as 'drinking water' if water not fit for drinking is also available. On remote sites, potable water should be provided.

Accommodation for clothing and facilities for changing clothing must be provided which is clean, warm, dry, well ventilated and secure. Such accommodation is only necessary when the work activity requires employees to change into specialist clothing. Where workers are required to wear special or protective clothing, arrangements should be such that the workers' own clothing is not contaminated by any hazardous substances.

Facilities for rest and eating meals must be provided so that workers may sit down during break times in areas where they do not need to wear personal protective equipment. Facilities should also be provided for pregnant women and nursing mothers to rest. Arrangements must be in place to ensure that food is not contaminated by hazardous substances.

Workplace environment

The issues governing the workplace environment are ventilation, heating and temperature, lighting, workstations and seating.

Ventilation

Ventilation of the workplace should be effective and sufficient and free of any impurity and air inlets should be sited clear of any potential contaminant (e.g. a chimney flue). Care needs to be taken to ensure that workers are not subject to uncomfortable draughts. The ventilation plant should have an effective visual or audible warning device fitted to indicate any failure of the plant. The plant should be properly maintained and records kept. The supply of fresh air should not normally fall below 5-8 litres per second per occupant.

Heating and temperature

During working hours, the temperature in all workplaces inside buildings shall be reasonable (not uncomfortably high or low). 'Reasonable' is usually defined as at least 16°C, unless much of the work involves severe physical effort in which case the temperature should be at least 13°C. These temperatures refer to readings taken close to the workstation at working height and away from windows. These minimum temperatures cannot be

maintained where rooms open to the outside or where food or other products have to be kept cold. A heating or cooling method must not be used in the workplace which produces fumes, injurious or offensive to any person. Such equipment needs to be regularly maintained.

A sufficient number of thermometers should be provided and maintained to enable workers to determine the temperature in any workplace inside a building (but need not be provided in every workroom).

Where, despite the provision of local heating or cooling, the temperatures are still unreasonable, suitable protective clothing and rest facilities should be provided.

Lighting

Every workplace should have suitable and sufficient lighting and this should be natural lighting so far as is reasonably practicable. Suitable and sufficient emergency lighting should also be provided and maintained in any room where workers are particularly exposed to danger in the event of a failure of artificial lighting (normally due to a power cut and/or a fire). Windows and skylights should be kept clean and free from obstruction so far as is reasonably practicable unless it would prevent the shading of windows or skylights or prevent excessive heat or glare.

When deciding on the suitability of a lighting system, the general lighting requirements will be affected by the following factors:

- the availability of natural light;
- the specific areas and processes, in particular any colour rendition aspects or concerns over stroboscope effects (associated with fluorescent lights);
- the type of equipment to be used and the need for specific local lighting;
- the lighting characteristics required (type of lighting, its colour, intensity and local adjustability); the location of visual display units and any problems of glare;
- structural aspects of the workroom, such as the use of screens in open office layout and the reduction of shadows;
- the presence of atmospheric dust;
- the heating effects of the lighting; lamp and window cleaning and repair (and disposal issues);
- the need and required quantity of emergency lighting.

Light levels are measured in illuminance, having units of lux (lx), using a light meter.

Poor lighting levels will increase the risk of accidents such as slips, trips and falls. More information is available on lighting from *Lighting at Work*, HSG38, HSE Books.

Workstations and seating

Workstations should be arranged so that work may be done safely and comfortably. The worker should be at a suitable height relative to the work surface and there should be no need for undue bending and stretching. Workers must not be expected to stand for long periods of time, particularly on solid floors. A suitable seat should be provided when a substantial part of the task can or must be done sitting. The seat should, where possible, provide adequate support for the lower back and a footrest be provided for any worker whose feet cannot be placed flat on the floor. It should be made of materials suitable for the environment, be stable and, possibly, have arm rests.

It is also worth noting that sitting for prolonged periods can present health risks, such as blood circulation and pressure problems, and vertebral and muscular damage.

Seating at Work, HSG57, HSE Books, provides useful guidance on how to ensure that seating in the workplace is safe and suitable.

Typical workplace lighting levels	
Workplace or type of work	Illuminance (lx)
Warehouses and stores	150
General factories or workshops	300
Offices	500
Drawing offices (detailed work)	700
Fine working (ceramics or textiles)	1000
Very fine work (watch repairs or engraving)	1400

Other factors

The condition of floors, stairways and traffic routes should be suitable for the purpose and well maintained and undue space constraints anywhere in the workplace should be avoided. Translucent or transparent doors should be constructed with safety glass and properly marked to warn pedestrians of their presence. Windows and skylights should be designed so that, when they are opened, they do not present an obstruction to passing pedestrians. There must be adequate arrangements in place to ensure the safe cleaning of windows and skylights. Finally, there need to be adequate provisions for the needs of disabled workers.

1.1.2 The effects of exposure to extremes of temperature; preventive measures

The human body is very sensitive to relatively small changes in external temperatures. Food not only provides energy and the build-up of fat reserves, but also generates heat which needs to be dissipated to the surrounding environment. The body also receives heat from its surroundings. The temperature of the body is normally around 37°C and it will attempt to maintain this temperature irrespective of the temperature of the surroundings. Therefore, if the surroundings are hot, sweating will allow heat loss to take place by evaporation caused by air movement over the skin. On the other hand, if the surroundings are cold, shivering causes internal muscular activity, which generates body heat.

At high temperatures, the body has more and more difficulty in maintaining its natural temperature unless sweating can take place and therefore water must be replaced by drinking. If the surrounding air has high humidity, evaporation of the sweat cannot take place and the body begins to overheat. This leads to heart strain and, in extreme cases, heat stroke. It follows that when working is required at high temperatures, a good supply of drinking water should be available and, further, if the humidity is high, a good supply of ventilation air is also needed. Heat exhaustion is a particular hazard in confined spaces.

At low temperatures, the body will lose heat too rapidly and the extremities of the body will become very cold leading to frostbite and possibly the loss of limbs. Under these conditions, thick, warm (thermal) clothing, the provision of hot drinks and external heating will be required. For those who work in sub-zero temperatures, such as cold store workers, additional precautions will be needed. The store doors must be capable of being unlocked from the inside and an emergency alarm system should be installed. Appropriate equipment selection and a good preventative maintenance system is very important as well as a regular health surveillance programme for the workers, who should be provided with information and training on the hazards associated with working in very low temperatures. In summary, extremes of temperature require special measures, particularly if accompanied by extremes of humidity. Frequent rest periods will be necessary to allow the body to acclimatize to the conditions. An index called WBGT (Wet Bulb Globe Temperature) is normally used.

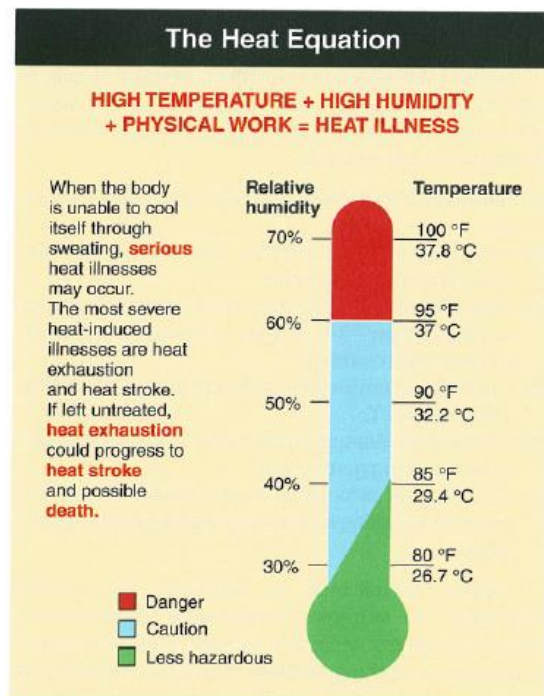


Figure – The heat equation

ILO recommendations for working in hot and cold environments

The ILO Code of Practice 'Ambient factors in the workplace' applies to any workplace where workers may be occupationally exposed to high or low temperatures and humidity. It applies to conditions in which:

- (a) temperatures and/or humidity are unusually high;
- (b) workers are exposed to high radiant heat;
- (c) high temperature and/or humidity occur in combination with protective clothing or high work rate;
- (d) temperatures are unusually low (e.g. in outdoor work during winter or in cold storage work);
- (e) high wind speeds (>5 m/s) prevail with unusually low temperatures;
- (f) work with bare hands is carried out for extended periods of time at temperatures below 15 °C.

Employers should assess the risks to the health and safety of workers from high and low temperatures, and determine the controls necessary to remove such hazards or to reduce risks to the lowest practicable level. The assessment should also examine the risks, arising from working with hazardous substances in hot or cold environments, caused by:

- (a) the use of protective clothing against hazardous substances that may increase the risk from heat stress; and
- (b) a hot environment that makes respiratory protection uncomfortable and less likely to

be used and necessitates restructuring of jobs in order to reduce the risks, for example by:

- (i) minimizing exposure to hazardous substances so that there is less need for protective clothing;
- (ii) changing the tasks so that work rates in hot conditions can be reduced

The risk assessment should include:

- (a) all stages of work cycles and the range of temperature and humidity under which the tasks are performed;
- (b) the range of clothing worn during the tasks;
- (c) major changes in physical activity level (metabolic heat production);
- (d) occasional tasks such as cleaning and maintenance of hot equipment and cold areas, and renewal of hot or cold insulation.

Where assessment shows that the workers may be at risk from heat stress, employers should, if practicable, eliminate the need for work in hot conditions or, if elimination is not practicable, take measures to reduce the thermal load from the environment. For workers who are at risk from exposure to radiant heat by working near hot surfaces, various methods are proposed in the code of practice including increasing the distance between the equipment and the exposed workers.

If it is not practicable to reduce the surface temperature, employers are recommended to consider:

- (a) the use of radiation barriers between the surface and the workplace (ensuring that they are maintained in a clean state);
- (b) water-cooling the hot surfaces, where practicable;
- (c) the use of portable reflective shielding;
- (d) the remote control of operations.

The code of practice requires employers to make water at low salt concentration or diluted flavoured drinks readily available to workers, and to encourage them to drink at least hourly, either by providing a close source or arranging for a regular delivery of drinks. Drinks at temperatures between 15 to 20 °C are preferable to iced drinks. Alcohol, caffeine, carbonated drinks or drinks with a high salt or sugar content are unsuitable. Drinking fountains are not recommended because they are too difficult to drink from in sufficient volume.

If a residual risk of heat stress remains even after all the control measures have been taken, workers should be adequately supervised so that they can be withdrawn from the hot

conditions if heat stress symptoms occur. First-aid facilities and trained first aiders should also be readily available.

If the assessment shows that the workers may be at risk from exposure to cold, the employers should, if practicable, eliminate the need for work in cold conditions (for example by rescheduling work to be performed in a warmer weather, or by moving the work from outdoors to indoors, or separating the cold parts of a process from the workers, as far as practicable). If elimination of such work is impracticable, employers should introduce other control measures to reduce risk from cold conditions.

If the work is done outdoors, or the temperature at the workplace depends on outdoor temperature, employers should take into account present and forecast weather conditions in scheduling work, and monitor conditions if the work is to last a long time.

The code recommends that if work is carried out at unusually low temperatures:

(a) employers should implement work-rest cycles with warm shelters for recovery when:

(i) work is likely to last for some time;

(ii) the temperature and wind speed are likely to vary;

(iii) workers are experiencing or showing symptoms of discomfort;

(b) work scheduling should allow for the extra time taken by tasks in the cold, and the need for adequate drink and food;

(c) where practicable, work rates should be designed to avoid heavy sweating, but if this does occur, employers should ensure that dry replacement clothing is available with warm changing facilities.

Under cold conditions, suitable protection should be given to the hands and fingers, particularly where dexterity is needed, as well as other exposed parts of the body. Employers should provide:

(a) facilities for warming the hands, for example by warm air;

(b) tools with insulated handles, especially in temperatures below freezing point;

(c) measures to ensure that the bare hand does not touch surfaces below -7 °C (e.g. by using workplace design or protective clothing);

(d) measures to ensure that bare skin does not touch liquids below 4 °C;

(e) appropriate measures to be taken in the event of insulating clothing getting wet;

(f) face and eye protection, as appropriate, for outdoor work and working in snow (e.g. safety goggles against glare).

Health surveillance is important for workers employed in extreme temperature environments. Where the control measures include work-rest systems or protective

clothing, workers should be examined by qualified occupational health personnel who should determine:

- their fitness for the conditions of work;
- any limitations that should be applied to their work;
- the programme of training and information of workers;
- the measures for providing such training and information;
- any pre-existing conditions which might affect their tolerance to heat or cold (such as heart disease, overweight or some skin diseases); and
- measures to minimize risks among vulnerable groups (such as older workers).

Workers exposed to heat or cold and their supervisors should be trained:

- to recognize symptoms which may lead to heat stress or hypothermia, in themselves or others, and the steps to be taken to prevent onset and/or emergencies;
- in the use of rescue and first-aid measures;
- about action to be taken in the event of increased risks of accidents because of high and low temperatures;
- to recognize the importance of drinking sufficient quantities of liquid and the dietary requirements providing intake of salt and potassium and other elements that are depleted due to sweating;
- and to be aware of the importance of physical fitness for work in hot or cold environments and the effects of drugs which can reduce their tolerance to thermal extremes.

Workers should be allowed sufficient time to acclimatize to an extremely hot or cold environment, particularly when they have recently moved from a country with a warmer or colder climate.

1.1.3 Prevention of falling materials through safe stacking and storage

Falling objects

Objects have the potential to fall onto or hit people at the workplace or adjoining areas if precautions are not taken. Adjoining areas could include a public footpath, road, square or

the yard of a dwelling or other building beside a workplace. Equipment, material, tools and debris that can fall or be released sideways or upwards are also considered falling objects.

Examples include:

- an object free falling from a structure, such as:
 - roof scaffolding, tools, rock, soil and bricks
 - fixtures including pictures, ceiling panels and white boards that have not been securely fixed, and
 - materials that fall from over stacked shelving.
- an object free falling from lifting machinery, a vehicle or other plant equipment, including loads being lifted that are not well secured or are unstable
- an object or material ejected while using machinery or hand tools
- the collapse of an unstable structure including shelves, benches and mezzanine floors not strong enough to bear the weight of the objects kept on them.

The role of PCBU's

PCBU's must manage the risks associated with an object falling on a person if it is reasonably likely to injure the person.

Adequate protection must be provided to minimise the risk and protect the person.

When managing risks, the risk must be eliminated, so far as is reasonably practicable. If elimination is not reasonably practicable, the risks must be minimised so far as is reasonably practicable.

This requires each relevant PCBU to provide and maintain a safe system of work including:

- fall prevention, so far as is reasonably practicable, and
- fall prevention, so far as is reasonably practicable, and
- if fall prevention is not reasonably practicable—a system to arrest falling objects, so far as is reasonably practicable.

Other control measures can include:

- use of 'isolation' or 'no go' zones where there is a risk of an object falling into an area
- providing appropriate training and supervision
- use of suitable Personal Protective Equipment (PPE).

Administrative controls (such as safe work methods or procedures) and PPE should only be used:

- when there are no other practical control measures available (as a last resort)
- as an interim measure until a more effective way of controlling the risk can be used, and

- to supplement higher level control measures (as a backup).

Selecting control measures—fall prevention

Fall prevention must be considered and, so far as is reasonably practicable, implemented before considering options for arresting the fall of objects. Control measures that can assist in protecting persons from falling objects are suggested below.

Securing a load

To prevent objects from falling freely from one level to another when they are being stored a secure physical barrier should be provided. Examples of additional control measures include:

- stacking items so they cannot slide, fall or collapse when they are stored above ground level
- using netting or restraining bars to keep items in place when they are stored above ground level so they cannot fall easily if they are disturbed
- following the safe load limit of the storage system when storing items
- ensuring shelving systems, barriers and other fittings are properly secured and well maintained
- inspecting pallets each time before use to make sure they are in a safe condition
- loading pallets correctly to ensure load stability—banding, shrink or stretch wrap can help with this.

Moving a load

When moving a load, a safe means of raising and lowering plant, materials and debris should be provided. Examples of additional control measures include:

- handling equipment such as a fork-lift truck that is suitable for the job is properly inspected, maintained and operated by competent and/or qualified persons as required
- following the safe working load limits and taking into account all relevant factors such as stability of ground conditions, use of outriggers or stabilisers, slewing rate and wind conditions (if applicable)
- making sure the load is balanced and secure when the load is lifted
- enclosing areas that loads are being lifted over, and
- establishing 'isolation' or 'no-go' zones with barriers and trained workers to restrict access.

Working at a height

Examples of controls for working at heights include:

- keeping large equipment at ground level
- good housekeeping, for example keeping the work area tidy and ensuring materials, debris, tools and equipment that are not being used are out of the way
- if placing an item on a scaffold or platform, providing a secure physical barrier at the edge of the elevated area, such as toe boards or infill panels that form part of a guardrail system
- tethering or otherwise securing tools and materials to prevent them falling on people below
- keeping tools or other materials away from edges and off of railings or sills
- using chutes when placing debris into a skip below a work area.

Demolition work

Principal contractors and other PCBUs involved in demolition work must provide adequate protection to ensure objects do not fall onto or hit construction workers or other people in adjoining areas such as a public footpath, road, and the yard of a dwelling or other building.

Selecting control measures—fall arrest

When considering control measures to contain or catch falling objects, identify the types of objects that could fall, as well as the fall gradient and distance, to ensure that any protective equipment or structures are strong enough to withstand the impact forces of the falling object.

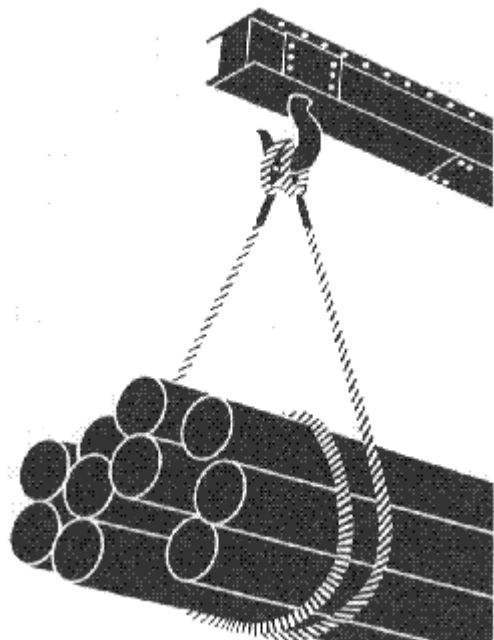
Examples of these control measures include:

- erecting a covered pedestrian walkway
- erecting a catch platform with vertical sheeting or perimeter screening, and
- providing overhead protection on mobile plant.

Maintaining control measures

Each relevant PCBU must ensure control measures are:

- suitable for the nature and duration of the work



- installed and used correctly, and
- maintained in good working order.

Reviewing control measures

Controlling health and safety risks in the workplace is an ongoing process that needs to take into account changes in the workplace. This is why procedures and risk control measures must be reviewed regularly to ensure they are still effective.

Potential hazards

Handling and storing materials involves diverse operations such as hoisting tons of steel with a crane, driving a truck loaded with concrete blocks, manually carrying bags and material, and stacking drums, barrels, kegs, lumber, or loose bricks.

The efficient handling and storing of materials is vital to industry. These operations provide a continuous flow of raw materials, parts, and assemblies through the workplace, and ensure that materials are available when needed. Yet, the improper handling and storing of materials can cause costly injuries.

Workers frequently cite the weight and bulkiness of objects being lifted as major contributing factors to their injuries. In 1990, back injuries resulted in 400,000 workplace accidents. The second factor frequently cited by workers as contributing to their injuries was body movement. Bending, followed by twisting and turning, were the more commonly cited movements that caused back injuries. Back injuries accounted for more than 20 percent of all occupational illnesses, according to data from the National Safety Council¹.

In addition, workers can be injured by falling objects, improperly stacked materials, or by various types of equipment. When manually moving materials, however, workers should be aware of potential injuries, including the following:

- Strains and sprains from improperly lifting loads, or from carrying loads that are either too large or too heavy.
- Fractures and bruises caused by being struck by materials, or by being caught in pinch points; and
- Cuts and bruises caused by falling materials that have been improperly stored, or by incorrectly cutting ties or other securing devices.

Since numerous injuries can result from improperly handling and storing materials, it is important to be aware of accidents that may occur from unsafe or improperly handled

equipment and improper work practices, and to recognize the methods for eliminating, or at least minimizing, the occurrence of those accidents. Consequently, employers and employees can and should examine their workplaces to detect any unsafe or unhealthful conditions, practices, or equipment and take the necessary steps to correct them.

MOVING, HANDLING, AND STORING MATERIALS

When manually moving materials, employees should seek help when a load is so bulky it cannot be properly grasped or lifted, when they cannot see around or over it, or when a load cannot be safely handled.

When an employee is placing blocks under raised loads, the employee should ensure that the load is not released until his or her hands are clearly removed from the load. Blocking materials and timbers should be large and strong enough to support the load safely. Materials with evidence of cracks, rounded corners, splintered pieces, or dry rot should not be used for blocking.

Handles and holders should be attached to loads to reduce the chances of getting fingers pinched or smashed. Workers also should use appropriate protective equipment. For loads with sharp or rough edges, wear gloves or other hand and forearm protection. To avoid injuries to the hands and eyes, use gloves and eye protection. When the loads are heavy or bulky, the mover should also wear steel-toed safety shoes or boots to prevent foot injuries if the worker slips or accidentally drops a load.

When mechanically moving materials, avoid overloading the equipment by letting the weight, size, and shape of the material being moved dictate the type of equipment used for transporting it. All materials handling equipment has rated capacities that determine the maximum weight the equipment can safely handle and the conditions under which it can handle those weights. The equipment-rated capacities must be displayed on each piece of equipment and must not be exceeded except for load testing. When picking up items with a powered industrial truck, the load must be centered on the forks and as close to the mast as possible to minimize the potential for the truck tipping or the load falling. A lift truck must never be overloaded because it would be hard to control and could easily tip over. Extra weight must not be placed on the rear of a counterbalanced forklift to offset an overload. The load must be at the lowest position for traveling, and the truck manufacturer's operational requirements must be followed. All stacked loads must be correctly piled and cross-tiered, where possible. Precautions also should be taken when stacking and storing material.

Stored materials must not create a hazard. Storage areas must be kept free from

accumulated materials that may cause tripping, fires, or explosions, or that may contribute to the harboring of rats and other pests. When stacking and piling materials, it is important to be aware of such factors as the materials' height and weight, how accessible the stored materials are to the user, and the condition of the containers where the materials are being stored.

All bound material should be stacked, placed on racks, blocked, interlocked, or otherwise secured to prevent it from sliding, falling, or collapsing. A load greater than that approved by a building official may not be placed on any floor of a building or other structure. Where applicable, load limits approved by the building inspector should be conspicuously posted in all storage areas.

When stacking materials, height limitations should be observed. For example, lumber must be stacked no more than 16 feet high if it is handled manually; 20 feet is the maximum stacking height if a forklift is used. For quick reference, walls or posts may be painted with stripes to indicate maximum stacking heights.

Used lumber must have all nails removed before stacking. Lumber must be stacked and leveled on solidly supported bracing. The stacks must be stable and self-supporting. Stacks of loose bricks should not be more than 7 feet in height. When these stacks reach a height of 4 feet, they should be tapered back 2 inches for every foot of height above the 4-foot level. When masonry blocks are stacked higher than 6 feet, the stacks should be tapered back one-half block for each tier above the 6-foot level.

Bags and bundles must be stacked in interlocking rows to remain secure. Bagged material must be stacked by stepping back the layers and cross-keying the bags at least every ten layers. To remove bags from the stack, start from the top row first. Baled paper and rags stored inside a building must not be closer than 18 inches to the walls, partitions, or sprinkler heads. Boxed materials must be banded or held in place using cross-ties or shrink plastic fiber.

Drums, barrels, and kegs must be stacked symmetrically. If stored on their sides, the bottom tiers must be blocked to keep them from rolling. When stacked on end, put planks, sheets of plywood dunnage, or pallets between each tier to make a firm, flat, stacking surface. When stacking materials two or more tiers high, the bottom tier must be chocked on each side to prevent shifting in either direction.

When stacking, consider the need for availability of the material. Material that cannot be stacked due to size, shape, or fragility can be safely stored on shelves or in bins. Structural steel, bar stock, poles, and other cylindrical materials, unless in racks, must be stacked and

blocked to prevent spreading or tilting. Pipes and bars should not be stored in racks that face main aisles; this could create a hazard to passers-by when supplies are being removed.

1.2 Violence at work

Violence at work, particularly from dissatisfied customers, clients, claimants or patients, causes a lot of stress and in some cases injury. This is not only physical violence as people may face verbal and mental abuse, discrimination, harassment and bullying. Fortunately, physical violence is still rare, but violence of all types has risen significantly in recent years. Violence at work is known to cause pain, suffering, anxiety and stress, leading to financial costs due to absenteeism and higher insurance premiums to cover increased civil claims. It can be very costly to ignore the problem. Violence from members of the public is a higher risk with several occupations - the health and social services, police and fire fighters, various types of enforcement officers, education, benefit services, various service industries and debt collection.

In 1999 the UK Home Office and the HSE published a comprehensive report entitled *Violence at Work: Findings from the British Crime Survey*. This was updated with a joint report *Violence at Work: New Findings from the 2000 British Crime Survey*, which was published in July 2001.

The report defines violence at work as:

All assaults or threats which occurred while the victim was working and were perpetrated by members of the public.

Physical assaults include the offences of common assault, wounding, robbery and snatch theft. Threats include both verbal threats, made to or against the victim and nonverbal intimidation. These are mainly threats to assault the victim and, in some cases, to damage property.

Excluded from the survey are violent incidents where there was a relationship between the victim and the offender and also where the offender was a work colleague. The latter category was excluded because of the different nature of such incidents.

The British Crime Survey shows that the number of incidents and victims rose rapidly between 1991 and 1995 but then declined in 1997. Unfortunately, since 1997 the decline seems to have reversed as the number of incidents has increased by 5 per cent.

Trend in physical assaults and threats at work, 1991-1999 (based on working adults of working age)					
Number of incidents (000s)	1991	1993	1995	1997	1999
All violence	947	1275	1507	1226	1288
Assaults	451	652	729	523	634
Threats	495	607	779	703	654
Number of victims (000s)					
All violence	472	530	570	649	604
Assaults	227	287	290	275	304
Threats	264	286	352	395	338

Source - British Crime Survey 1999.

It is interesting that almost half of the assaults and a third of the threats happened after 1800 hrs, which suggests that the risks are higher if people work at night or in the late evening. About 16 per cent of the assaults involved offenders under the age of 16 and were mainly against teachers or other education workers.

Violence at work is defined by the UK HSE as:

any incident in which an employee is abused, threatened or assaulted in circumstances relating to their work.

In recognition of this, the HSE has produced a useful guide to employers which includes a four-stage action plan and some advice on precautionary measures (*Violence at Work: a Guide for Employers*, INDG69 (rev)). The employer is just as responsible, under health and safety legislation, for protecting employees from violence as they are for any other aspects of their safety.

The HSE recommends the following four-point action plan:

1. find out if there is a problem;
2. decide on what action to take;
3. take the appropriate action;
4. check that the action is effective.

1.2.1 Risk factors relating to violence at work

Most people think of violence as a physical assault. However, workplace violence is a much broader problem. It is any act in which a person is abused, threatened, intimidated or assaulted in his or her employment. Workplace violence includes:

- **Threatening behaviour** - such as shaking fists, destroying property or throwing objects.
- **Verbal or written threats** - any expression of an intent to inflict harm.
- **Harassment** - any behaviour that demeans, embarrasses, humiliates, annoys, alarms or verbally abuses a person and that is known or would be expected to be unwelcome. This includes words, gestures, intimidation, bullying, or other inappropriate activities.
- **Verbal abuse** - swearing, insults or condescending language.
- **Physical attacks** - hitting, shoving, pushing or kicking.

Rumours, swearing, verbal abuse, pranks, arguments, property damage, vandalism, sabotage, pushing, theft, physical assaults, psychological trauma, anger-related incidents, rape, arson and murder are all examples of workplace violence.

Workplace violence is not limited to incidents that occur within a traditional workplace. Work-related violence can occur at off-site business-related functions (conferences, trade shows), at social events related to work, in clients' homes or away from work but resulting from work (a threatening telephone call to your home from a client).

Certain work factors, processes, and interactions can put people at increased risk from workplace violence. Examples include:

- Working with the public.
- Handling money, valuables or prescription drugs (e.g. cashiers, pharmacists).
- Carrying out inspection or enforcement duties (e.g. government employees).
- Providing service, care, advice or education (e.g. health care staff, teachers).
- Working with unstable or volatile persons (e.g. social services, or criminal justice system employees).
- Working in premises where alcohol is served (e.g. food and beverage staff).
- Working alone, in small numbers (e.g. store clerks, real estate agents), or in isolated or low traffic areas (e.g. washrooms, storage areas, utility rooms).
- Working in community-based settings (e.g. nurses, social workers and other home visitors).
- Having a mobile workplace (e.g. taxicab).

- Working during periods of intense organizational change (e.g. strikes, downsizing).

Risk of violence may be greater at certain times of the day, night or year; For example,

- late hours of the night or early hours of the morning
- tax return season
- overdue utility bill cut-off dates
- during the holidays
- pay days
- report cards or parent interviews
- performance appraisals

Risk of violence may increase depending on the geographic location of the workplace; for example,

- near buildings or businesses that are at risk of violent crime (e.g. bars, banks)
- in areas isolated from other buildings or structures

Certain occupational groups tend to be more at risk from workplace violence. These occupations include:

- health care employees
- correctional officers
- social services employees
- teachers
- municipal housing inspectors
- public works employees
- retail employees

1.2.2 Appropriate control measures to reduce risks from violence at work

It is important to evaluate the risks and decide who may be harmed and how this is likely to occur. The threats may be from the public or co-workers at the workplace or may be as a result of visiting the homes of customers. Consultation with employees or other people at risk will improve their commitment to control measures and will make the precautions much more effective. The level of training and information provided, together with the general working environment and the design of the job, all have a significant influence on the level of risk.

Those people at risk could include those working in:

- reception or customer service points;
- enforcement and inspection;
- lone working situations and community-based activities;
- front-line service delivery;
- education and welfare;
- catering and hospitality;
- retail petrol and late-night shopping operations;
- leisure facilities, especially if alcohol is sold;
- healthcare and voluntary roles;
- policing and security;
- mental health units or in contact with disturbed people;
- cash handling or control of high value goods.

Consider the following issues:

- quality of service provided;
- design of the operating environment-type of equipment used;
- designing the job.

Some violence may be deterred if measures are taken which suggest that any violence may be recorded. Many public bodies use the following measures:

- informing telephone callers that their calls will be recorded;
- displaying prominent notices that violent behaviour may lead to the withdrawal of services and prosecution;
- using closed circuit television (CCTV) or security personnel.

Quality of service provided

The type and quality of service provision has a significant effect on the likelihood of violence occurring in the workplace. Frustrated people whose expectations have not been met and who are treated in an unprofessional way may believe they have the justification to cause trouble.

Sometimes circumstances are beyond the control of the staff member and potentially violent situations need to be defused. The use of correct skills can turn a dissatisfied customer into a confirmed supporter simply by careful response to their concerns. The perceived lack of or incorrect information can cause significant frustrations.

Personal safety and service delivery are very closely connected and have been widely researched in recent years. This has resulted in many organizations altering their facilities to reduce customer frustration and enhance sales. It is interesting that most service points experience less violence when they remove barriers or screens, but the transition needs to be carefully planned in consultation with staff and other measures adopted to reduce the risks and improve their protection.

The layout, ambience, colours, lighting, type of background music, furnishings including their comfort, information, things to do while waiting and even smell all have a major impact. Queue-jumping causes a lot of anger and frustration and needs effective signs and proper queue management, which can help to reduce the potential for conflict.

Wider desks, raised floors and access for special needs, escape arrangements for staff, carefully arranged furniture and screening for staff areas can all be utilized.

Type of security equipment used

There is a large amount of equipment available and expert advice is necessary to ensure that it is suitable and sufficient for the task. Some measures that could be considered include the following:

Access control to protect people and property. There are many variations from staffed and friendly receptions, barriers with swipe-cards and simple coded security locks. The building layout and design may well partly dictate what is chosen. People inside the premises need access passes so they can be identified easily.

Closed circuit television is one of the most effective security arrangements to deter crime and violence. Because of the high cost of the equipment, it is essential to ensure that proper independent advice is obtained on the type and the extent of the system required. Alarms: there are three main types:

- intruder alarms fitted in buildings to protect against unlawful entry, particularly after working hours;
- panic alarms used in areas such as receptions and interview rooms covertly located so that they can be operated by the staff member threatened;
- personal alarms carried by an individual to attract attention and to temporarily distract the attacker. Radios and pagers can be a great asset to lone workers in particular, but special training is necessary as good radio discipline with a special language and codes are required.

Mobile phones are an effective means of communicating and keeping colleagues informed of people's movements and problems such as travel delays. Key numbers should be inserted for rapid use in **an** emergency.

Job Design

Many things can be done to improve security and the way in which the job is carried out to avoid violence. These include:

- using cashless payment methods;
- keeping money on the premises to a minimum;
- careful check of customer or client's credentials;
- careful planning of meetings away from the workplace;
- team work where suspected aggressors may be involved;
- regular contact with workers away from their base.
- There are special services available to provide contact arrangements;
- avoidance of lone working as far as is reasonably practicable;
- thinking about how staff who have to work shifts or late hours will get home. Safe transport and/or parking areas may be required;
- setting up support services to help victims of violence and, if necessary, other staff who could be affected. They may need debriefing, legal assistance, time off work to recover or counselling by experts.

A busy accident and emergency department of a general hospital, for example, has to balance the protection of staff from violent attack with the need to offer patients a calm and open environment. Protection could be given to staff by the installation of wide counters, coded locks on doors, CCTV systems, panic buttons and alarm systems. The employment of security staff and strict security procedures for the storage and issuing of drugs are two further precautions taken by such departments. Awareness training for staff so that they can recognize early signs of aggressive behaviour and an effective counselling service for those who have suffered from violent behaviour should be provided.

Take the appropriate action

The arrangements for dealing with violence should be included in the safety policy and managed like any other aspect of the health and safety procedures. Action plans should be drawn up and followed through using the consultation arrangements as appropriate. The police should also be consulted to ensure that they are happy with the plan and are prepared to play their part in providing back-up and the like.

Check that the action is effective

Ensure that the records are being maintained and any reported incidents are investigated and suitable action taken. The procedures should be regularly audited and changes made if they are not working properly.

Victims should be provided with help and assistance to overcome their distress, through debriefing, counselling, time off to recover, legal advice and support from colleagues.