

Element 1: Why we should manage workplace health and safety

1.1 Morals and money

- Moral expectations of good standards of health and safety
- The financial cost of incidents (insured and uninsured costs);

1.2 Regulating health and safety

- What enforcement agencies do and what happens if you don't comply
- The part played by international standards (like ISO 45001)
- The International Labour Organization's (ILO) Convention C155 and Recommendation R164:
 - - employers' responsibilities (C155 Article 16 and R164 Recommendation 10)
 - - workers' responsibilities and rights (C155 Article 19 and R164 Recommendation 16)
- Where you can find information on national standards.

1.3 Who does what in organisations

- Roles of directors/managers/supervisors
- How top management can demonstrate commitment by:
 - making resources available to design, implement and maintain the occupational health and safety management system
 - defining roles and responsibilities
 - appointing senior managers with specific responsibility for health and safety
 - appointing competent people (internal and external, including specialists) to help the organisation meet its health and safety obligations
 - reviewing health and safety performance
- Responsibilities of organisations who share a workplace to work together on health and safety issues (C155 Article 17, R164 Recommendation 11)
- How clients and contractors should work together:
 - the duties they owe each other ('Safety and health in construction', ILO Code of Practice – chapter 2)
 - effective planning and co-ordination of contracted work
 - pre-selection and management of contractors.

Element 2: How health and safety management systems work and what they look like

2.1 What they are and the benefits they bring

- The basics of a health and safety management system: the 'Plan, Do, Check, Act' model (see ISO 45001:2018 and ILO-OSH2001)
- The benefits of having a formal/certified health and safety management system.

2.2 What good health and safety management systems look like

- The occupational health and safety policy (see clause 5.2, ISO 45001:2018):
 - role
 - typical content
 - proportionate to the needs of the organisation
- Responsibilities – all workers at all levels of an organisation have responsibility for health and safety
- Practical arrangements for making it work:
 - the importance of stating the organisation's arrangements for planning and organising, controlling hazards, consultation, communication, monitoring compliance, assessing effectiveness
- Keeping it current: when you might need to review the health and safety management system, including passage of time, technological, organisational or legal changes, and results of monitoring.

Element 3: Managing risk – understanding people and processes

3.1 Health and safety culture

- Meaning of the term 'health and safety culture'
- Relationship between health and safety culture and health and safety performance
- Indicators of an organisation's health and safety culture:

- incidents, absenteeism, sickness rates, staff turnover, level of compliance with health and safety rules and procedures, complaints about working conditions
- Influence of peers on health and safety culture.

3.2 Improving health and safety culture

- Gaining commitment of management
- Promoting health and safety standards by leadership and example and appropriate use of disciplinary procedures
- Competent workers
- Good communication within the organisation:
 - benefits and limitations of different methods of communication (verbal, written and graphic)
 - use and effectiveness of noticeboards and health and safety media
 - co-operation and consultation with the workforce and contractors including:
 - benefits of worker participation (including worker feedback)
 - the role of health and safety committees
- When training is needed:
 - induction (key health and safety topics to be covered)
 - job change
 - process change
 - introduction of new legislation
 - introduction of new technology.

3.3 How human factors influence behaviour positively or negatively

- Organisational factors, including: culture, leadership, resources, work patterns, communications
- Job factors, including: task, workload, environment, display and controls, procedures
- Individual factors, including: competence, skills, personality, attitude and risk perception
- Link between individual, job and organisational factors.

3.4 Assessing risk

- Meaning of hazard, risk, risk profiling and risk assessment
- Risk profiling: What is involved? Who should be involved? The risk profiling process

- Purpose of risk assessment and the 'suitable and sufficient' standard it needs to reach (see HSG65: 'Managing for health and safety')
- A general approach to risk assessment (5 steps):
 - identify hazards:
 - sources and form of harm; sources of information to consult; use of task analysis, legislation, manufacturers' information, incident data, guidance
 - identify people at risk:
 - workers, operators, maintenance staff, cleaners, contractors, visitors, public
 - evaluate risk (taking account of what you already do) and decide if you need to do more:
 - likelihood of harm and probable severity
 - possible acute and chronic health effects
 - risk rating
 - principles to consider when controlling risk (section 3.10.1 ILO-OSH 2001 – 'Guidelines on occupational safety and health management systems')
 - practical application of the principles – applying the general hierarchy of control (clause 8.1.2 of ISO 45001:2018)
 - application based on prioritisation of risk
 - use of guidance; sources and examples of legislation
 - applying controls to specified hazards
 - residual risk; acceptable/tolerable risk levels
 - distinction between priorities and timescales
 - record significant findings
 - reasons for review
- Application of risk assessment for specific types of risk and special cases:
 - examples of when they are required, including fire, DSE, manual handling, hazardous substances, noise
 - why specific risk assessment methods are used for certain risks – to enable proper, systematic consideration of all relevant issues that contribute to the risk
 - special case applications to young people, expectant and nursing mothers; also consideration of disabled workers and lone workers.

3.5 Management of change

- Typical types of change faced in the workplace and the possible impact of such change, including: construction works, change of process, change of equipment, change in working practices
- Managing the impact of change:
 - communication and co-operation
 - risk assessment
 - appointment of competent people
 - segregation of work areas
 - amendment of emergency procedures
 - welfare provision

3.6 Safe systems of work for general work activities

- Why workers should be involved when developing safe systems of work
- Why procedures should be recorded/written down
- The differences between technical, procedural and behavioural controls
- Developing a safe system of work:
 - analysing tasks, identifying hazards and assessing risks
 - introducing controls and formulating procedures
 - instruction and training in how to use the system
- Monitoring the system.

3.7 Permit-to-work systems

- Meaning of a permit-to-work system
- Why permit-to-work systems are used
- How permit-to-work systems work and are used
- When to use a permit-to-work system, including: hot work, work on non-live electrical systems, machinery maintenance, confined spaces, work at height.

3.8 Emergency procedures

- Why emergency procedures need to be developed
- What to include in an emergency procedure (see HSG268: 'The health and safety toolbox')
- What to consider when deciding on first aid needs in a workplace:

- shift patterns
- location of site
- activities carried out
- number of workers
- location relative to hospitals/emergency services
- Why people need training and emergency procedures need to be tested.

Element 4: Health and safety monitoring and measuring

4.1 Active and reactive monitoring

- The differences between active and reactive monitoring
- Active monitoring methods (health and safety inspections, sampling and tours) and their usefulness:
 - differences between the methods; frequency; competence and objectivity of people doing them; use of checklists; allocation of responsibilities and priorities for action
- Reactive monitoring measures and their usefulness:
 - data on accidents, dangerous occurrences, near misses, ill-health, complaints by workforce, and enforcement action and incident investigations
- Why lessons need to be learnt from beneficial and adverse events
- The difference between leading and lagging indicators.

4.2 Investigating incidents

- The different levels of investigations: minimal, low, medium and high (see HSG245)
- Basic incident investigation steps:
 - step one: gathering the information
 - step two: analysing the information
 - step three: identifying risk control measures
 - step four: the action plan and its implementation
- How occupational accidents and diseases are recorded and notified by the organisation (Recording and notification of occupational accidents and diseases, ILO Code of Practice – chapters 4–7).

4.3 Health and safety auditing

- Definition of the term 'audit' (Clause 3.32, ISO 45001:2018)
- Why health and safety management systems should be audited, including:
 - negative: identifying failing of a management system
 - positive: organisational learning and assurance
- Difference between audits and inspections
- Types of audit: product/services, process, system
- Advantages and disadvantages of external and internal audits
- The audit stages:
 - notification of the audit and timetable for auditing
 - pre-audit preparations, including competent audit team, time and resources required
 - information gathering
 - information analysis
 - completion of audit report.

4.4 Review of health and safety performance

- Why health and safety performance should be reviewed
- What the review should consider:
 - level of compliance with relevant legal and organisational requirements
 - accident and incident data, corrective and preventive actions
 - inspections, tours and sampling
 - absences and sickness
 - quality assurance reports
 - audits
 - monitoring data/records/reports
 - external communications and complaints
 - results of participation and consultation
 - objectives met
 - actions from previous management reviews
 - legal/good practice developments
 - assessing opportunities for improvement and the need for change

- Reporting on health and safety performance
- Feeding review outputs into action and development plans as part of continuous improvement.

Element 5: Physical and psychological health

5.1 Noise

- The physical and psychological effects of exposure to noise
- The meaning of commonly used terms: sound pressure, intensity, frequency, the decibel scale, dB(A) and dB(C)
- When exposure should be assessed; comparison of measurements to exposure limits recognised standards
- Basic noise control measures, including: isolation, absorption, insulation, damping and silencing; the purpose, use and limitations of personal hearing protection (types, selection, use, maintenance and attenuation factors)
- Role of health surveillance.

5.2 Vibration

- The effects on the body of exposure to hand–arm vibration and whole-body vibration
- The effects on the body to hand–arm vibration and whole-body vibration
- When exposure should be assessed; comparison of measurements to exposure limits established by recognised standards
- Basic vibration control measures, including: alternative methods of working (mechanisation where possible); low-vibration emission tools; selection of suitable equipment ; maintenance programmes; limiting the time workers are exposed to vibration (use of rotas, planning work to avoid long periods of exposure); suitable PPE
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- The types of, and differences between, non-ionising and ionising radiation (including radon) and their health effects
- Typical occupational sources of non-ionising and ionising radiation
- The ways of controlling exposures to non-ionising and ionising radiation
- Basic radiation protection strategies, including the role of the competent person in the workplace
- The role of monitoring and health surveillance.

5.4 Mental ill-health

- The frequency and extent of mental ill-health at work
- Common symptoms of workers with mental ill-health: depression, anxiety/panic attacks, post-traumatic stress disorder (PTSD)
- The causes of, and controls for, work-related mental ill-health (see the HSE's Management Standards):
 - demands
 - control
 - support
 - relationships
 - role
 - change
- Home–work interface: commuting, childcare issues, relocation, care of frail (vulnerable) relatives
- Recognition that most people with mental ill-health can continue to work effectively.

5.5 Violence at work

- Types of violence at work including: physical, psychological, verbal, bullying
- Jobs and activities which increase the risk of violence, including: police, fire, medical, social workers, those in customer services, lone workers, those working with people under the influence of drugs and alcohol, those who handle money or valuables
- Control measures to reduce risks from violence at work.

5.6 Substance abuse misuse at work

- Risks to health and safety from substance abuse at work (alcohol, legal/illegal drugs and solvents)
- Control measures to reduce risks from substance abuse at work.

Element 6: Musculoskeletal health

6.1 Work-related upper limb disorders

- Meaning of musculoskeletal disease and work-related upper limb disorders (WRULDs)
- Possible ill-health conditions from poorly designed tasks and workstations
- Avoiding/minimising risks from poorly designed tasks and workstations by considering:
 - task (including repetitive, strenuous)
 - environment (including lighting, glare)
 - equipment (including user requirements, adjustability, matching the workplace to individual needs of workers).

6.2 Manual handling

- Good handling technique for manually lifting loads
- Avoiding/minimising manual handling risks by considering the task, the individual, the load and the working environment

6.3 Load-handling equipment

- Hazards and controls for common types of load-handling aids and equipment: sack trucks and trolleys; pallet trucks; people-handling aids; fork-lift trucks; lifts; hoists for loads and people; conveyors and cranes
- Requirements for lifting operations:
 - strong, stable and suitable equipment
 - positioned and installed correctly
 - visibly marked with safe working load

- lifting operations are planned, supervised and carried out in safe manner by competent persons
- special requirements for lifting equipment used for lifting people
- Periodic inspection and examination/testing of lifting equipment.

Element 7: Chemical and biological agents

7.1 Hazardous substances

- Forms of chemical agent: dusts, fibres, fumes, gases, mists, vapours and liquids
- Forms of biological agents: fungi, bacteria and viruses
- Difference between acute and chronic health effects
- Health hazard classifications: acute toxicity; skin corrosion/irritation; serious eye damage/eye irritation; respiratory or skin sensitisation; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single and repeated exposure); aspiration hazard.

7.2 Assessment of health risks

- Routes of entry of hazardous substances into the body
- The body's defence mechanisms (superficial and cellular)
- What needs to be taken into account when assessing health risks
- Sources of information:
 - product labels
 - safety data sheets (who must provide them and information that they must contain)
- Limitations of information used when assessing risks to health
- Role and limitations of hazardous substance monitoring.

7.3 Occupational exposure limits

- Purpose of occupational exposure limits
- Long-term and short-term limits
- Why time-weighted averages are used
- Limitations of exposure limits

- Comparison of measurements to recognised standards.

7.4 Control measures

- The need to prevent exposure or, where this is not reasonably practicable, adequately control it
- Common measures used to control exposure to hazardous substances (Ambient factors in the workplace, ILO Code of Practice – chapters 4.3–4.5)
- Additional controls that are needed for substances that can cause cancer, asthma or genetic damage that can be passed from one generation to another.

7.5 Specific agents

- Health risks, controls and likely workplace activities/locations where the following specific agents can be found:
 - asbestos (excluding removal and disposal)
 - blood-borne viruses
 - carbon monoxide
 - cement
 - Legionella
 - Leptospira
 - silica
 - wood dust.

Element 8: General workplace issues

8.1 Health, welfare and work environment

- Health and welfare:
 - supply of drinking water, washing facilities, sanitary conveniences, accommodation for clothing, rest and eating facilities, seating, ventilation, heating and lighting
- The effects of exposure to extremes of temperature; preventive control measures.

8.2 Working at height

- What affects risk from working at height, including vertical distance, fragile roofs, deterioration of materials, unprotected edges, unstable/poorly maintained access equipment, weather and falling materials
- Hierarchy for selecting equipment for working safely at height:
 - avoid working at height by, for example, using extendable tools to work from ground level; assembly of components/equipment at ground level
 - prevent a fall from occurring by using an existing workplace that is known to be safe, such as a solid roof with fixed guardrails; use of suitable equipment such as mobile elevating work platforms (MEWPs), scissor lifts or scaffolds; work restraint systems
 - minimise the distance and/or consequence of a fall, by collective measures such as safety nets and airbags installed close to the level of work, and personal protective measures such as fall-arrest systems
- Main precautions necessary to prevent falls and falling materials, including proper planning and supervision of work, avoiding working in adverse weather conditions
- Emergency rescue
- Provision of training, instruction and other measures
- General precautions when using common forms of access equipment, including ladders, stepladders, scaffolds (independent tied and mobile tower), MEWPs, trestles, staging platforms and leading edge protection systems
- Prevention of falling materials through safe stacking and storage.

8.3 Safe working in confined spaces

- Types of confined spaces and why they are dangerous
- The main hazards associated with working within a confined space
- What should be considered when assessing risks from a confined space
- The precautions to be included in a safe system of work for confined spaces
- When a permit-to-work for confined spaces would not be required.

8.4 Lone working

- What a lone worker is and typical examples of lone working
- Particular hazards of lone working
- Control measures for lone working

- What should be considered when assessing risks of lone working.

8.5 Slips and trips

- Common causes of slips and trips, including: uneven or unsuitable surfaces, trailing cables, obstructions in walkways, unsuitable footwear
- Main control measures for slips and trips, including: non-slip surfaces, maintenance, housekeeping.

8.6 Safe movement of people and vehicles in the workplace

- Hazards to pedestrians:
 - being struck by moving, flying or falling objects
 - collisions with moving vehicles
 - striking against fixed or stationary objects
- Hazards from workplace transport operations (vehicle movement, non-movement)
- Control measures to manage workplace transport:
 - safe site (design and activity)
 - suitability of traffic routes (including site access and egress, pedestrian-only zones and crossing points)
 - spillage control
 - management of vehicle movements
 - environmental considerations: visibility/lighting, gradients, changes of level, surface conditions (use of non-slip coatings)
 - segregating pedestrians and vehicles and measures to be taken when segregation is not practicable
 - protective measures for people and structures (barriers, marking signs, warnings of vehicle approach and reversing)
 - site rules (including speed limits)
 - safe vehicles
 - suitable vehicles
 - maintenance/repair of vehicles
 - visibility from vehicles/reversing aids
 - driver protection and restraint systems

- safe drivers
 - selection and training of drivers
 - banksman (reversing assistant)
 - management systems for assuring driver competence, including local codes of practice.

8.7 Work-related driving

- Managing work-related driving:
 - plan
 - assess the risks
 - policy
 - work-related driving taken account of by top management
 - roles and responsibilities
 - do
 - co-operation between departments (where relevant)
 - adequate systems in place, including maintenance strategies
 - communication and consultation with the workforce
 - provision of adequate instruction and training
 - check
 - monitor performance (ensures the policy is working correctly)
 - ensure all workers report work-related road incidents or near misses
 - act
 - review performance and learn from experience
 - regularly update the policy
- Work-related driving control measures:
 - safe driver (competence – checks on level of skill/experience, validity of driving licence; provision of instruction; fitness to drive)
 - safe vehicle (vehicles fit for purpose for which they are being used; maintained in a safe condition; adequate safety devices; maximum load weight not exceeded; adequate restraints for securing goods)

- safe journey (planning of routes; realistic work schedule – enough time to complete the journey safely, allowing for driving breaks; consideration of weather conditions; consideration of legal driving hours where relevant)
- Hazards associated with the use of electric and hybrid vehicles:
 - silent operation/pedestrians not being aware of vehicles manoeuvring
 - availability and location of charging points
 - electric shock for high voltage components and cabling
 - retained electrical charge in components even when the vehicle is switched off
 - unexpected movement of the vehicle or engine components due to the motor's magnetic forces
 - potential for the release of explosive gases and harmful liquids from damaged batteries.

Element 9: Work equipment

9.1 General requirements

- Providing suitable equipment
- Preventing access to dangerous parts of machinery
- When the use and maintenance of equipment with specific risks needs to be restricted
- Providing information, instruction and training about specific risks to people at risk, including users, maintenance staff and managers
- Why equipment should be maintained and maintenance conducted safely
- Emergency operation controls, stability, lighting, markings and warnings, clear workspace.

9.2 Hand-held tools

- Hazards from manual and powered hand-held tools:
 - requirements for safe use
 - condition and fitness for use
 - suitability for purpose
 - location to be used in (including flammable atmosphere)
- Hazards of portable power tools (including drill, sander) and how these hazards are controlled.

9.3 Machinery hazards

- Potential consequences as a result of contact with, or exposure to, mechanical or other hazards (see ISO 12100:2010 (Table B.1))
- Hazards of a range of equipment:
 - manufacturing/maintenance machinery (including bench-top grinder, pedestal drill)
 - agricultural/horticultural machinery (including cylinder mower, strimmer/brush cutter, chainsaw)
 - retail machinery (including compactor)
 - construction machinery (including cement mixer, bench-mounted circular saw)
 - emerging technologies (including drones, self-propelled vehicles, digital technologies).

9.4 machinery

- The basic principles of operation, advantages and limitations of the following control methods:
 - guards: fixed, interlocking and adjustable/self-adjusting
 - protective devices: two-hand, hold-to-run, sensitive protective equipment (trip devices), emergency stop controls
 - jigs, holders, push-sticks
 - information, instruction, training and supervision
 - personal protective equipment
- Use of the above control methods for the range of equipment listed in 9.3
- Basic requirements for guards and safety devices:
 - compatibility with process
 - adequate strength, maintained
 - allow for maintenance without removal
 - do not increase risk or restrict view
 - are not easily bypassed.

Element 10: Fire

10.1 Fire principles

- The fire triangle: sources of ignition; fuel and oxygen in a typical workplace; oxidising materials
- Classification of fires (different local classifications will be accepted)
- Principles of heat transmission and fire spread: convection, conduction, radiation, direct burning
- Common causes and consequences of fires in workplaces.

10.2 Preventing fire and fire spread

- Control measures to minimise the risk of fire starting in a workplace:
 - eliminate/reduce quantities of flammable and combustible materials used or stored
 - control ignition sources, including suitable electrical equipment in flammable atmospheres
 - use systems of work
 - good housekeeping
- Storage of flammable liquids in workrooms and other locations
- Structural measures to prevent the spread of fire and smoke: properties of common building materials (including fire doors); compartmentation; protection of openings and voids.

10.3 Fire alarms and fire-fighting

- Common fire-detection and alarm systems
- Portable fire-fighting equipment: siting, maintenance and training requirements
- Extinguishing media: water, foam, dry powder, carbon dioxide; advantages and limitations
- Access for fire and rescue services and vehicles.

10.4 Fire evacuation

- Means of escape: travel distances, stairs, passageways, doors, emergency lighting, exit and directional signs, assembly points
- Emergency evacuation procedures
- Role and appointment of fire marshals
- The purpose of fire drills, including roll call
- Provisions for people with disabilities
- Emergency escape routes to be recorded in building plans.

Element 11: Electricity

11.1 Hazards and risks

- Electric shock and its effects on the body; what affects severity: voltage, frequency, duration, resistance, current path; electrical burns (from direct and indirect contact with an electrical source)
- Common causes of electrical fires, including portable devices overheating during charging
- Workplace electrical equipment, including portable: what is likely to lead to accidents (unsuitable equipment; inadequate maintenance; use of defective/poorly maintained electrical equipment; use of electrical equipment in wet environments)
- Secondary effects, including falls from height
- Work near overhead power lines; contact with underground power cables during excavation work
- Work on mains electricity supplies.

11.2 Control measures

- Protection of conductors
- Strength and capability of equipment
- Advantages and limitations of protective systems: fuses, earthing, isolation of supply, double insulation, residual current devices, reduced and low voltage systems
- Use of competent people
- Use of safe systems of work (no live working unless no other option, isolation, locating buried services; protection against overhead cables)
- Emergency procedures following an electrical incident
- Inspection and maintenance strategies: user checks; formal inspection and tests of the electrical installation and equipment; frequency of inspection and testing; records of inspection and testing; advantages and limitations of portable appliance testing (PAT).

