

► **Draft code of practice on safety and health in textiles, clothing, leather and footwear**

Meeting of Experts to Discuss and Adopt the Draft Code of Practice on Safety and Health in Textiles, Clothing, Leather and Footwear
(Geneva, 4–8 October 2021)

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▶ Acronyms, abbreviations and definitions

In this code of practice (hereinafter “code”), the following terms are used in the meaning assigned to them below:

Competent authority: A ministry, government department or other public authority with the power to issue regulations, orders or other instructions having the force of law and enforce them.

Competent person: A person with suitable training and sufficient knowledge, experience and skills for the safe performance of the specific work.

Dangerous occurrence: A readily identifiable event as defined under national laws and regulations, with potential to cause an injury or disease to persons at work or to the public.

Employer: Any physical or legal person that employs one or more workers.

Engineering controls: Use of technical measures, such as enclosure, ventilation and workplace design, to minimize exposure to hazards.

Exposure limit: An exposure level specified or recommended by a competent authority to limit injury to health.

Guard: Protective devices and safety features that cover moving pieces of machinery to prevent contact with body parts or to control hazards like chips or sparks from exiting the machine.

Guard rail: An adequately secured rail erected along an exposed edge to prevent persons from falling.

Hazard: Has the inherent potential to cause injury or damage to a person’s health.

Night work: All work performed during a period of not less than seven consecutive hours, including the interval from midnight to 5 a.m.

Occupational accident: An occurrence arising out of, or in the course of, work which results in fatal or non-fatal injury.

Occupational disease: Any disease contracted as a result of an exposure to risk factors arising from work activity.

Occupational health services: Services entrusted with essentially preventive functions and responsible for advising the employer, the workers and their representatives in the undertaking on: (i) the requirements for establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work; and (ii) the adaptation of work to the capabilities of workers in the light of their state of physical and mental health.

OSH: Occupational safety and health.

Overtime: All hours worked in excess of normal hours.

PPE: Personal protective equipment that, for the purpose of this code, includes personal protective clothing.

Risk: A combination of the likelihood of an occurrence of a hazardous event and the severity of injury or damage to the health of people caused by this event.

Safety and health officer: A person with sufficient skills, knowledge and experience who assists employers and workers in assessing, designing, planning and implementing safety activities and helps maintain an effective OSH management system.

Safety and health committee: A committee with representation of workers' safety and health representatives and employers' representatives established and functioning at organization level according to national laws, regulations and practice.

Subcontractor: A person or an enterprise being contracted by the main contractor or employer to carry out work or deliver services, labour or materials as part of a larger project.

Violence and harassment in the world of work: A range of unacceptable behaviours and practices, or threats thereof, whether a single occurrence or repeated, that aim at, result in, or are likely to result in physical, psychological, sexual or economic harm, and includes gender-based violence and harassment, which should be taken into account in the management of OSH.

Worker: Any person who performs work, either regularly or temporarily, for an employer.

Worker representative: In accordance with the Workers' Representatives Convention, 1971 (No. 135), any person who is recognized as such by national law or practice, whether they are:

- (a) trade union representatives, namely representatives designated or elected by trade unions or by members of such unions; or
- (b) elected representatives, namely representatives who are freely elected by the workers of the enterprise in accordance with provisions of national laws or regulations or of collective agreements, and whose functions do not include activities which are recognized as the exclusive prerogative of trade unions in the country concerned.

Work-related injuries, ill health and diseases: Negative impacts on health arising from exposure to chemical, biological, physical, work-organizational and psychosocial factors at work.

▶ Introduction

1. In accordance with the decision taken by the Governing Body of the ILO at its 341st Session in March 2021, a Meeting of Experts on Safety and Health in Textiles, Clothing, Leather and Footwear was convened in Geneva from 4 to 8 October 2021 to discuss and adopt a code of practice (hereinafter “code”) on safety and health in textiles, clothing, footwear and leather. The Meeting was composed of eight experts appointed following consultations with Governments, eight experts and their advisers appointed following consultations with the Employers’ group and eight experts appointed following consultations with the Workers’ group of the Governing Body.
2. Chapter 1 provides an overview of the code’s purpose, objectives and use. The general obligations, responsibilities, duties and rights of the governments, employers’ and workers’ organizations as well as other stakeholders are outlined in Chapter 2. Chapters 3–5 outline general principles, including on occupational safety and health (OSH) management systems, management of change, reporting, recording and notification of work-related injuries and diseases, ill health and dangerous occurrences as well as on safety and health organization. Chapter 6 addresses building and fire safety. Chapter 7 contains other general preventive and protective measures in the workplace. Chapters 8–11 provide detailed descriptions of how to control biological hazards, hazardous substances, ergonomic hazards and physical hazards, while Chapter 12 concerns safety requirements for tools, machines and equipment. Chapter 13 addresses workplace transport safety. Chapter 14 concerns the competence and training of managers, workers and contractors and Chapter 15 contains guidance on personal protective equipment (PPE). Chapter 16 outlines measures for special protection and Chapter 17 concerns the welfare and well-being of workers in the industries. Finally, Chapter 18 addresses waste and emissions management.

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► Sectoral codes of practice

ILO sectoral codes of practice are reference tools setting out principles that can be reflected in the design and implementation of policies, strategies, programmes, legislation, administrative measures and social dialogue mechanisms, in particular economic sectors or clusters of sectors. Sectoral codes of practice are adopted by meetings of experts comprising governments, employers and workers. They can be implemented progressively to take into account different national settings, cultures, and social, economic, environmental and political contexts.

Sectoral codes of practice draw their principles from the ILO's international labour standards (Conventions, Protocols and Recommendations) and other sources, including Declarations, codes of practice and other policy guidance adopted and endorsed by the International Labour Conference or the Governing Body of the ILO. They also draw on other international agreements and policy in the sector concerned, as well as on relevant trends and developments in regional and national law and practice.

Sectoral codes of practice focus on the issues that are priorities for governments, employers and workers, and that are unique to particular economic sectors and industries. While international labour standards normally deal with more general principles of labour law and practice, sectoral codes of practice specify the principles and processes that could be implemented to promote decent work in particular workplaces or contexts. They benefit from the expertise of practitioners in the relevant sectors to capture good industry practices and innovations.

Sectoral codes of practice are not legally binding. They are not subject to ratification or supervisory mechanisms established under the ILO's international labour standards. Sectoral codes of practice can therefore be aspirational in scope and expand on principles laid down in international labour standards and other international agreements and policy, all the while recognizing that they can be adapted to different national systems and circumstances. As such, ILO standards and other tools or guidance adopted and endorsed by the International Labour Conference and/or the Governing Body form the foundation on which sectoral codes of practice build further. It is therefore understood that sectoral codes of practice are based on the full principles, rights, and obligations set out in international labour standards, and nothing set out in these codes of practice should be understood as lowering such standards.

► 1. General provisions

1.1. Purpose and objectives

1. The purpose of this code is to provide practical guidance for the use of all those, both in the public and private sectors, who have obligations, responsibilities, duties and rights regarding safety and health in the textiles, clothing, leather and footwear industries.
2. This code should contribute to improved safety and health in the context of sustainable development by:
 - (a) promoting a preventative safety and health culture in the textiles, clothing, leather and footwear industries;
 - (b) protecting all workers in these industries from workplace hazards;
 - (c) preventing or reducing occupational accidents, diseases and dangerous occurrences;
 - (d) formulating and implementing a coherent national policy and programmes on OSH and the welfare of workers in these industries and on the protection of the general working environment;
 - (e) promoting effective consultation and cooperation between governments, employers, workers and their organizations, as well as brands and buyers, in the improvement of OSH in these industries;
 - (f) establishing the respective role and obligations of the competent authorities and the responsibilities, duties and rights of employers and workers and all other parties involved, with regard to workplace hazards;
 - (g) improving the management of OSH risks at each workplace through the implementation and integration of consistent OSH management systems; and
 - (h) improving OSH knowledge and competence in these industries.

1.2. Application and scope

1. This code is applicable to all textiles, clothing, leather and footwear manufacturing operations, irrespective of their nature.
2. This code provides guidance, in accordance with the provisions of national laws and regulations, to:
 - (a) all government authorities, brands and buyers, employers, workers and their respective organizations whose activities influence the safety, health and welfare of workers in these industries; and
 - (b) all individuals involved in textiles, clothing, leather or footwear manufacturing operations, that is investors, employers, persons in control of premises, workers, contractors and subcontractors, as appropriate to their duties and responsibilities for OSH.
3. This code is not a legally binding instrument and its provisions are not intended to replace applicable national laws, regulations or other nationally or internationally recognized instruments. In the absence of national laws and regulations on a particular OSH issue, or

where these are not up to date, guidance should be drawn from this code, as well as from relevant nationally and internationally recognized instruments.

4. This code addresses most of the currently identified hazards and risks associated with textiles, clothing, leather and footwear manufacturing. However, changes in these industries or in specific operations may alter their risk profile and this code cannot therefore be assumed to address every hazard or risk.
5. While this code contains detailed provisions, its use should not inhibit the development of new technologies, better practice or the adoption of alternative measures that provide effective protection to all workers involved in textiles, clothing, leather and footwear manufacturing.
6. This code contains references to those institutions responsible for the delivery and award of vocational qualifications. Such institutions are urged to review existing curricula in the light of this code's recommendations for training and the allocation of worksite responsibilities.
7. Measures implemented to protect workers' safety and health in the textiles, clothing, leather and footwear industries are intrinsically linked to measures to protect the environment. This relationship should be taken into account by both the competent authorities and employers in designing and implementing their respective environmental sustainability and safety and health policies and programmes.
8. The provisions of this code should be read in the context of national conditions and technical possibilities, and the scale of operations involved.

1.3. Reference to ILO instruments

1. In the establishment, implementation and review of policies and programmes on OSH under this code, competent authorities and employers' and workers' organizations, as well as brands and buyers and other stakeholders, should take into account ratified international labour standards and that the fundamental principles and rights at work apply to all workers and employers. They should also take account of the provisions of other relevant ILO instruments, including Conventions, Protocols, Recommendations, codes of practice and guidelines. A list of these is contained in the bibliography at the end of this code.

▶ 2. General obligations, responsibilities, duties and rights

2.1. Cooperation

1. This code recognizes that effective OSH systems require joint commitment and consultation between the competent authority, brands and buyers, employers, workers and their representatives. The parties should cooperate in a constructive manner to ensure that the objectives of this code are achieved.
2. Measures for cooperation should be taken relating to the identification of hazards and the elimination or control of risks to safety and health from textiles, clothing, leather and footwear manufacturing operations. These measures should include the following:
 - (a) the competent authority should endeavour to promote close cooperation between brands, buyers, designers, manufacturers, suppliers, employers, workers and their representatives on safety and health in the textiles, clothing, leather and footwear industries;
 - (b) employers, in discharging their responsibilities, should cooperate and consult as closely as possible with all workers and/or their representatives;
 - (c) workers should cooperate as closely as possible with their fellow workers and their employers in the discharge by the employers of their responsibilities, and should comply with all prescribed procedures and practices relating to safety and health in these industries and receive the necessary information, instruction and training to do so;
 - (d) manufacturers and suppliers should on request provide employers with all necessary information as is available and required for identifying hazards and evaluating risks to safety and health that might result from a particular hazard; and
 - (e) brands and buyers should include past OSH performance and other OSH criteria in their sourcing processes, for evaluating and selecting textiles, clothing, leather or footwear factories, and clearly communicate to the selected factory their expectation of the establishment and implementation of an OSH management system.

2.2. Competent authority

2.2.1. General provisions

1. The competent authority, in the light of national conditions and practice and the provisions of this code, in consultation with the most representative organizations of employers and workers concerned, should:
 - (a) develop, maintain and control the application of laws and regulations on OSH in the textiles, clothing, leather and footwear industries and identify and incorporate nationally and internationally recognized instruments into these;
 - (b) formulate, implement and periodically review a coherent national policy on OSH, including the promotion of a systematic approach through OSH management systems in accordance with national laws and regulations; and

- (c) consider making new, or updating existing, statutory provisions for the identification of hazards and the elimination or control of risks in these industries.
2. Statutory provisions should include national laws or regulations, codes of practice, exposure limits, standards of competency and training for all workers and establish a process for consultation with, and dissemination of, information to employers, workers and their representatives.
 3. The competent authority should establish, in accordance with the provisions of relevant ILO Conventions and taking into account the need to harmonize such systems internationally:
 - (a) systems and criteria for identifying safety hazards and appropriate risk control measures relating to structures, facilities, machinery, equipment, processes and operations used in textiles, clothing, leather and footwear manufacturing;
 - (b) systems, including criteria, for classifying substances that may be hazardous to health;
 - (c) systems and criteria for assessing the relevance of the information required to determine whether a substance is hazardous;
 - (d) requirements for marking and labelling substances for use in the textiles, clothing, leather and footwear industries; and
 - (e) criteria for the information contained in the substance safety data sheets received by employers.
 4. The competent authority should set out the necessary rules to determine these criteria and requirements, but is not necessarily expected to undertake technical tasks or laboratory tests itself;
 5. If justified on safety and health grounds, the competent authority should:
 - (a) prohibit or restrict the use of certain hazardous practices, processes or substances; or
 - (b) require advance notification and authorization before any such restricted practices, processes and substances are used; or
 - (c) specify categories of workers who, for reasons of safety and health, are not allowed to use specified processes or substances, or are allowed to use them but only under conditions prescribed in national laws or regulations.
 6. The competent authority should ensure the enforcement of national laws and regulations concerning the policy mentioned above through an adequate and appropriate system of inspection. The system of enforcement should be developed through a consultative process involving employer and worker representatives. The system of enforcement should provide for corrective measures and adequate penalties for violations of national laws and regulations concerning the policy.
 7. The measures to be taken to ensure that there is organized cooperation between employers and workers to promote safety and health in textiles, clothing, leather and footwear factories should be prescribed by national laws or regulations or by the competent authority. Such measures should include:
 - (a) the establishment of safety and health committees representative of employers and workers with such powers and duties as may be prescribed;
 - (b) the election or appointment of worker safety and health representatives with such authorities and duties as may be prescribed;

- (c) the appointment by the employer of suitably qualified and experienced persons to promote safety and health; and
 - (d) the training of safety and health representatives and safety and health committee members.
8. The competent authority should ensure that guidance is provided to employers, workers and their representatives to help them comply with their legal obligations under the policy. The competent authority should provide assistance to employers, workers and their representatives with respect to their OSH responsibilities, duties and rights.
 9. The competent authority should establish, apply, and periodically review a system for the sex-disaggregated recording and notification by employers of occupational accidents, occupational diseases and dangerous occurrences in the textiles, clothing, leather and footwear industries.
 10. The competent authority should make provisions for workers in the textiles, clothing, leather and footwear industries to have access to work injury benefits schemes with a view to ensuring compensation in case of work-related accidents or diseases and access to medical and allied care, as required.

2.2.2. Labour inspectorates

1. Taking into consideration the provisions of the Labour Inspection Convention (No. 81) and Recommendation (No. 81), 1947, inspectorates designated by the competent authority should, in a manner prescribed by national laws and regulations:
 - (a) enforce all relevant laws and regulations in textiles, clothing, leather and footwear factories;
 - (b) periodically carry out inspections in the presence of the employer and worker representatives, and monitor compliance with all relevant laws and regulations;
 - (c) provide technical information and advice to assist employers, workers and their representatives with respect to their OSH responsibilities, duties and rights;
 - (d) keep abreast of the OSH requirements and performance of comparable national or international textiles, clothing, leather and footwear factories to provide feedback for further development and improvement of safety measures; and
 - (e) participate, in cooperation with the recognized organizations of employers and workers, in formulating and updating safety rules and measures to be adopted at the national and factory levels.
2. Labour inspectors should, in a manner prescribed by national laws and regulations:
 - (a) be competent to deal with the OSH issues for all workers associated with textiles, clothing, leather and footwear manufacturing and be able to provide support and advice;
 - (b) have the authority to investigate accidents, dangerous occurrences and diseases;
 - (c) notify the employer, the workers concerned and their representatives, as well as safety and health committees, of the findings of inspections and the required remedial action;
 - (d) have the authority to remove workers from situations involving an imminent and/or serious danger to life or health;

- (e) periodically determine whether an existing OSH management system or OSH elements are in place, adequate and effective;
 - (f) have authority to suspend or restrict textiles, clothing, leather and footwear manufacturing activities on safety and health grounds, until the condition giving rise to the suspension or restriction has been corrected; and
 - (g) have access to all worker health and safety training records.
3. The authority, rights, procedures and responsibilities of labour inspectors should be communicated to all affected parties.

2.3. Employers

1. Employers have a duty to coordinate, protect and promote the safety and health of all workers on site. Employers should comply with the measures to be taken regarding risks to safety and health in the textiles, clothing, leather and footwear industries, including appropriate nationally and internationally recognized instruments, codes and guidelines as prescribed, approved or recognized by the competent authority.
2. Employers should provide and maintain factories, workplaces, plant, equipment, tools and machinery, and should design work so as to eliminate or, if this is not practicable, control hazards and risks in textiles, clothing, leather and footwear manufacturing, and be consistent with national laws and regulations.
3. Employers should set out in writing their respective programmes and arrangements as part of their general policy in the field of OSH, and the various responsibilities exercised under these arrangements. This information should be clearly communicated to the workers by oral, written or other suitable means, commensurate with the ability of the workers.
4. Employers, in consultation with workers and their representatives, should:
 - (a) identify hazards and make an assessment of the risks to the safety and health of workers arising from textiles, clothing, leather and footwear manufacturing, requesting and making effective use of the information provided by the supplier of equipment or materials and from other reasonably available sources; and
 - (b) take all reasonable, practicable and feasible measures to eliminate or, if this is not possible, control risks to safety and health identified in the above risk assessment, in order to reduce exposure.
5. In taking preventive and protective measures, the employer should address the hazard and associated risk in accordance with the hierarchy set out in section 3.4, paragraph 3. If the employers, workers or their representatives cannot agree, the issue should be referred to the competent authorities in accordance with section 2.2.1, paragraph 8.
6. Employers should make the necessary arrangements to provide and integrate prevention activities as follows:
 - (a) regular surveillance of the working environment and appropriate health surveillance;
 - (b) adequate and competent supervision of work and work practices;
 - (c) the application and use of appropriate control measures and the periodic review of their effectiveness;

- (d) provide information, instruction and training to managers, supervisors and workers, and to worker safety and health representatives, on issues relating to hazards in textiles, clothing, leather and footwear manufacturing;
 - (e) where necessary, measures to deal with emergencies and accidents, including first-aid arrangements; and
 - (f) investigate occupational accidents, diseases and dangerous occurrences, in cooperation with safety and health committees and/or workers' representatives, to identify all causes, and measures necessary to prevent recurrences of similar occupational accidents, diseases and incidents.
- 7.** Employers should be required to provide, where necessary, adequate personal protective equipment (PPE) to reduce the risks of accidents or adverse effects on safety and health. OSH measures should not involve any expenditure for the workers.
- 8.** Employers should have in place arrangements to:
- (a) deal with accidents, diseases and dangerous occurrences that may involve hazards or risks to safety and health in the textiles, clothing, leather and footwear industries; and
 - (b) eliminate or control any risk to the safety and health of workers, and thereby to the public and the environment.
- 9.** Employers should register the workers with the institution responsible for workers' compensation, employment or work injury benefits or social security, as appropriate in the national context, to ensure that workers are effectively covered against work accidents and occupational diseases. They should pay the contributions or premiums due in this respect, and should notify the responsible institution in case of a work-related accident or occupational disease.
- 10.** When an employer has more than one establishment, the employer should provide safety and health measures relating to the prevention and control of, and protection against, injuries and risks to safety and health in textiles, clothing, leather and footwear manufacturing for all workers without discrimination.
- 11.** Multinational textiles, clothing, leather and footwear manufacturing enterprises should maintain the highest standards of safety and health, in conformity with national requirements, bearing in mind their relevant experience within the enterprise as a whole, including any knowledge of special hazards. They should also make available to the representatives of the workers, and upon request, to the competent authorities and the workers' and employers' organizations in all countries in which they operate, information on the OSH standards relevant to their local operations, which they observe in other countries. In particular, they should make known to those concerned any special hazards and related protective measures associated with new products and processes. They, like comparable domestic enterprises, should be expected to play a leading role in the examination of causes of industrial safety and health hazards and in the application of resulting improvements within the enterprise as a whole.
- 12.** Employers should initiate and maintain a process of consultation and cooperation with workers and their representatives concerning all aspects of safety in textiles, clothing, leather and footwear manufacturing specified in this code, in particular as regards the measures of prevention and protection listed in paragraphs 1–11 above. This process should be carried out within the framework of safety and health committees, in accordance with the Occupational Safety and Health Convention, 1981 (No. 155) and the Promotional

Framework on Occupational Safety and Health Convention, 2006 (No. 187), or through another mechanism determined by the competent authority or by voluntary agreements.

13. Employers should verify:
 - (a) compliance with safety regulations;
 - (b) safe working techniques are followed;
 - (c) the care taken of machines and equipment, particularly any devices provided in the interest of safety and health;
 - (d) training in the use of, and the care taken of, PPE; and
 - (e) the competence of managers, supervisors and workers for their tasks.
14. Whenever two or more employers undertake activities simultaneously at one workplace, they should collaborate in order to comply with the prescribed OSH measures, without prejudice to the responsibility of each employer for the safety and health of all workers. In appropriate circumstances, the competent authority should prescribe general procedures for this collaboration.
15. Managers and supervisors should implement the factory's OSH policy, including through the selection of safe equipment, work methods and work organization, and the maintenance of high levels of skill. They should endeavour to reduce risks and hazards to safety and health in the activities for which they are responsible to as low a level as reasonably practicable.
16. Managers and supervisors should ensure that workers receive adequate information, instruction and training on safety and health regulations, policies, procedures and requirements, and satisfy themselves that this information is understood.
17. Managers and supervisors should assign tasks to their subordinates in a clear and precise way. They should satisfy themselves that workers understand and implement the OSH requirements.
18. Managers and supervisors should ensure that work is planned, organized and carried out in such a way as to eliminate or, if this is not possible, reduce the risk of accidents and the exposure of workers to conditions that may lead to injury or damage their health.
19. In consultation with workers and/or their representatives, managers and supervisors should assess the need for additional information, instruction and training of workers by monitoring compliance with safety requirements.
20. When managers or supervisors observe non-compliance with safety and health regulations or codes of practice by any person, they should take corrective action immediately. If such action is unsuccessful, the problem should be referred to a higher level of management immediately.
21. Employers should establish effective ongoing communication and coordination between appropriate sections of the textiles, clothing, leather or footwear factory with contractors and subcontractors prior to the commencement of work.

2.4. Workers

1. Workers have the duty to cooperate with the employer to achieve compliance with the OSH duties and responsibilities of the employer.

2. When workers or their representatives observe non-compliance with safety and health regulations or codes of practice, they should take appropriate action immediately, such as warning other workers and advising on safe systems of work. If such action is unsuccessful, the problem should be referred to a higher level of management immediately.
3. Workers have the responsibility, in accordance with their training, and the instructions and means given by their employers, to:
 - (a) comply with prescribed OSH measures;
 - (b) take all steps to eliminate or control hazards or risks to themselves and to others arising during the manufacturing of textiles, clothing, leather and footwear, including the proper care and use of protective clothing, facilities and equipment placed at their disposal for this purpose;
 - (c) report forthwith to their immediate supervisor or safety and health representative any unusual conditions at the factory or affecting installations and equipment which they believe could present a hazard or risk to their safety or health or that of other people arising from textiles, clothing, leather and footwear manufacturing operations, and which they cannot deal with effectively themselves; and
 - (d) cooperate with the employer and other workers to permit compliance with the duties and responsibilities placed on the employer and workers, and to participate with the safety and health committee in the development and implementation of the OSH management system of the factory.
4. Workers should participate in instruction and training programmes provided by the employer or required by the competent authority, and should demonstrate such acquired knowledge and understanding of safety and health measures on the job. Workers and their representatives should review the instruction and training programmes for effectiveness. Where they determine that these programmes are ineffective, they should make recommendations to the employer to improve their effectiveness.
5. Workers should participate and cooperate in exposure monitoring and health surveillance programmes required by the competent authority and/or provided by the employer for the protection of their health.
6. Workers and their representatives should participate in the process of consultation and cooperate with employers concerning all aspects of safety and health of textiles, clothing, leather and footwear manufacturing operations specified in this code, and in particular as regards measures of protection and prevention listed in section 2.3, paragraphs 1–11.
7. Workers and their representatives have the right to:
 - (a) be consulted regarding any hazards or risks to safety and health in textiles, clothing, leather and footwear manufacturing;
 - (b) inquire into and receive information from the employer regarding any hazards or risks to safety and health arising from textiles, clothing, leather and footwear manufacturing operations, including information from suppliers. This information should be provided in forms and languages easily understood by the workers;
 - (c) take adequate precautions, in cooperation with their employer, to protect themselves and other workers against hazards or risks to safety and health from textiles, clothing, leather and footwear manufacturing operations; and

- (d) be consulted and be involved in the identification of hazards and assessment of risks to safety and health to be conducted by the employer and/or by the competent authority. They should also have the right to be involved in relevant control measures and investigations.
- 8.** Workers and their representatives should be involved in the introduction and development of workers' health surveillance, and should participate and cooperate with their employers and with occupational health professionals in its implementation.
- 9.** Workers should be informed in a timely, objective and comprehensible manner:
- (a) of the reasons for the examinations and investigations relating to the safety and health risks generated by their work; and
 - (b) individually of the results of medical examinations, including pre-assignment medical examinations, and of the respective health assessments. The results of medical examinations should be kept confidential in accordance with national laws and regulations and should not be used to discriminate against workers.
- 10.** Workers have the right:
- (a) to bring to the attention of their representatives, the employer or the competent authority hazards or risks to safety and health arising from textiles, clothing, leather and footwear manufacturing operations;
 - (b) to appeal to the competent authority if they consider that the measures taken and the means used by the employer are inadequate for the purpose of ensuring OSH at work;
 - (c) to remove themselves and their co-workers in the vicinity from danger resulting from textiles, clothing, leather and footwear manufacturing operations when they have reasonable justification to believe that there is an imminent and/or serious risk to their safety and health. Such workers should inform their supervisor and/or safety and health representative immediately;
 - (d) in the case of a safety or health condition that places them at increased risk of harm, to be transferred to alternative work not exposing them to that increased risk, if such work is available and if the workers concerned have the qualifications or can reasonably be trained for such alternative work;
 - (e) to receive adequate compensation if the case referred to in (d) above results in loss of employment;
 - (f) to be provided with adequate medical treatment and compensation for work-related injuries, ill health and diseases resulting from textiles, clothing, leather and footwear manufacturing, including cash benefits to dependent family members in case of death of the worker due to a work-related injury or disease; and
 - (g) to refrain from using or to shut down equipment or a process, or to refrain from using a substance which can reasonably be expected to be hazardous, if the relevant information is not available to assess the hazards or risks to safety and health.
- 11.** Workers who remove themselves from danger in accordance with the provisions of paragraph 10(c) above should be protected against undue consequences in accordance with national laws and regulations.
- 12.** Workers who justifiably take those actions specified in paragraph 10(a), (b) and (g) should be protected from unwarranted discrimination, for which there should be recourse in national laws and regulations.

13. Workers and their elected safety and health representatives should receive appropriate information, instruction and training and, where necessary, retraining in the most effective methods available for minimizing risks to safety and health from textiles, clothing, leather and footwear manufacturing operations, in particular in those areas referred to in Chapters 8–13 of this code.
14. Women workers have the right, in the case of pregnancy or when breastfeeding, to alternative work not hazardous to the health of the unborn or nursing child, where such work is available, in order to prevent exposure to hazards in textiles, clothing, leather and footwear manufacturing, and to return to their previous jobs at the appropriate time.
15. The supply of labour by private employment agencies is the subject of the ILO Private Employment Agencies Convention (No. 181) and its accompanying Recommendation (No. 188), 1997.

2.5. Suppliers and manufacturers

1. In accordance with the guidance contained in the ILO code of practice on safety and health in the use of machinery, national laws, regulations and other measures should be taken to ensure that those who design, manufacture, import, provide or transfer machinery, equipment or substances for use in the textiles, clothing, leather and footwear industries:
 - (a) ensure that the machinery, equipment or substances do not entail dangers for the safety and health of those using them correctly and are in compliance with national safety laws and regulations or internationally recognized instruments applicable to their design and construction;
 - (b) make available:
 - (i) information concerning their requirements for the correct set-up, use and maintenance of machinery and equipment and the correct use of substances;
 - (ii) information concerning the hazards of machinery and equipment, including the dangerous part of machinery and hazardous components of equipment, and the dangerous properties of hazardous substances and physical agents or products; and
 - (iii) information on how to eliminate or control risks arising from the identified hazards associated with the products; and
 - (c) submit to the factory a list of vehicles and workers delivering standard products (such as bolts, nuts and gaskets) and refilling stocks with products or chemicals on a regular basis.
2. In accordance with the ILO Chemicals Convention, 1990 (No. 170), suppliers of chemicals, whether manufacturers, importers or distributors, should provide users with the relevant safety data sheets and with instructions for the safe use of chemicals.

2.6. Contractors and subcontractors

1. Contractors and subcontractors should ensure that any person under their control performing tasks that may affect OSH is competent in terms of training and experience, and should keep the associated records.
2. Contractors and subcontractors should comply with the arrangements established by the employer in charge of the textiles, clothing, leather or footwear factory, which should:

- (a) include the contractor and subcontractor performing a risk assessment and establish risk controls for their work. The contractor and subcontractor should comply with the risk controls and inform the employer of any changes;
 - (b) include OSH criteria in procedures for evaluating and selecting contractors and subcontractors;
 - (c) establish effective ongoing communication and coordination between appropriate sections of the factory and the contractor and subcontractor prior to commencing work, which should include provisions for identifying hazards and the measures to eliminate and control risks;
 - (d) include arrangements for reporting work-related injuries and diseases, ill health and dangerous occurrences among the contractor's and subcontractor's workers while performing work for the factory;
 - (e) provide relevant workplace safety and health hazard awareness, information, instruction and training to contractors and subcontractors or their workers prior to commencing work and as work progresses, as necessary;
 - (f) include regular monitoring of their OSH performance;
 - (g) include periodic joint safety and health inspections by employers, contractors and subcontractors involved in the work at the site to identify and control harm and hazards at work; and
 - (h) ensure that on-site OSH policies, procedures and arrangements are followed by the contractor(s) and subcontractor(s).
- 3.** When using contractors and subcontractors, the textiles, clothing, leather or footwear factory should ensure that:
- (a) contractors and subcontractors develop a safety and health plan in accordance with the factory OSH management system that is approved by the employer in charge of the factory prior to commencing work;
 - (b) the same safety and health rights outlined above, apply to contractors and subcontractors and their workers as to the workers in the establishment, including training requirements and procedures to investigate accidents, occupational illnesses and dangerous occurrences;
 - (c) where required, only such contractors and subcontractors are used that have been duly registered or hold licences; and
 - (d) contracts specify safety and health requirements as well as sanctions and penalties in case of non-compliance. Contracts should include the right for supervisors mandated by the employer in charge of the textiles, clothing, leather or footwear factory to inspect work and to stop work whenever a risk of serious injury is apparent and to suspend operations until the necessary remedies have been put in place.

▶ 3. Occupational safety and health management systems

3.1. General provisions

1. The process of improving working conditions at a textiles, clothing, leather or footwear factory should be approached in an inclusive and systematic way. With a view to achieving acceptable and environmentally sound OSH conditions, it is necessary to invest in permanent structures for their continuous review, planning, implementation, evaluation and action. This should be done through the implementation of OSH management systems. The systems should be specific to each factory and appropriate to its size and the nature of its activities. Their design and application should be guided by the ILO *Guidelines on occupational safety and health management systems* (2001) and also by the ILO *10 Keys for Gender Sensitive OSH Practice – Guidelines for Gender Mainstreaming in Occupational Safety and Health* (2013).
2. The OSH management system should contain the main elements of policy, organizing, planning and implementation, evaluation and action for improvement as shown in the figure below.

▶ **Figure 1. Main elements of the OSH management system**



3. OSH measures and measures to protect the environment are intrinsically linked. It is strongly recommended that textiles, clothing, leather or footwear factories, in conjunction with an OSH management system, have an environmental management system in place which identifies the environmental impact and facilitates the setting of environmental performance targets and measurement of progress.

3.2. Occupational safety and health policy

1. The employer, in consultation with workers and their representatives, should set out in writing an OSH policy, which should be:
 - (a) specific to the textiles, clothing, leather or footwear factory and appropriate to its size and the nature of its activities;
 - (b) concise, clearly written, dated and made effective by the signature or endorsement of the employer or the most senior accountable person in the factory;
 - (c) communicated and readily accessible to all persons at their place of work;
 - (d) reviewed for continuing suitability; and
 - (e) made available to relevant external interested parties, as appropriate.
2. The OSH policy should include, as a minimum, the following key principles and objectives to which the textiles, clothing, leather or footwear factory is committed:
 - (a) protecting the safety and health of all workers in the factory by preventing work-related injuries, ill health, diseases and incidents;
 - (b) complying with relevant OSH national laws and regulations, voluntary programmes, collective agreements on OSH and other requirements to which the factory subscribes;
 - (c) ensuring that workers and their representatives are consulted and encouraged to participate actively in all elements of the OSH management system; and
 - (d) continually improving the performance of the OSH management system.
3. The OSH management system should be compatible with or integrated in other management systems in the factory.

3.2.1. Worker participation

1. Worker participation is an essential element of the OSH management system in the textiles, clothing, leather or footwear factory.
2. The employer should ensure that workers and their safety and health representatives are consulted, informed and trained on all aspects of OSH, including emergency arrangements, associated with their work.
3. The employer should make arrangements for workers and their safety and health representatives to have the time and resources to participate actively in the processes of organizing, planning and implementation, evaluation and action for improvement of the OSH management system.

3.3. Initial review

1. Before works begin the employer should guarantee that an initial review is carried out by competent persons, in consultation with workers and their representatives, as appropriate. It should:
 - (a) assess the risks to safety and health arising from the existing or proposed work environment or work organization;

- (b) identify the current applicable national laws and regulations, national guidelines, specific guidelines, voluntary programmes and other relevant requirements for the activities to be carried out;
 - (c) determine whether planned or existing controls are adequate to eliminate hazards or control risks; and
 - (d) analyse other available data, in particular data provided from workers' health surveillance (see Appendix I), the surveillance of the working environment (see Appendix II) and active and reactive monitoring, if available.
2. The initial review should be used in the systematic development of safety and health arrangements in textiles, clothing, leather and footwear manufacturing and as the basis for the planning and practical implementation of the OSH policy.

3.4. Hazard identification, risk assessment and preventive and protective measures

1. For work which by its very nature exposes workers to hazards and risks, arrangements should be made for the identification and periodic assessment of these hazards and risks to safety and health at each permanent or temporary workplace in the factory generated by the use of different operations, tools, machines, equipment and substances.
2. Employers should plan and implement appropriate preventive and protective measures required to reduce the risks generated by the identified hazards to the lowest reasonably practicable level, in conformity with national laws and regulations.
3. Employers should have a system in place, in consultation with all workers and their representatives, to identify hazards, assess risks to safety and health and apply control measures in the following order of priority:
 - (a) eliminate the hazard;
 - (b) control the risk at source, through measures such as substitution (for example, replacing hazardous equipment or substances with less hazardous equipment or substances) or engineering controls;
 - (c) minimize the risk through the design of safe work systems; and
 - (d) insofar as the risk remains, provide for the use of PPE, in various sizes, adaptable to both women and men and at no cost to workers, and implement measures to ensure its use and maintenance.
4. In giving effect to the above, the employer should establish, implement and maintain documented procedures to ensure that the following activities take place:
 - (a) hazard identification;
 - (b) risk assessment;
 - (c) control of risks; and
 - (d) a process to monitor and evaluate the effectiveness of these activities.

3.4.1. Hazard identification

1. The identification of hazards in the workplace should take into account:
 - (a) the situation or events or combination of circumstances that have the potential to give rise to injury or illness;
 - (b) the nature of potential injury or illness relevant to the activity, product or service;
 - (c) past injuries, dangerous occurrences and illness;
 - (d) the way work is organized, managed, carried out and any related changes;
 - (e) the design of workplaces, work processes, materials, plant and equipment;
 - (f) the fabrication, installation, commissioning, handling and disposal of materials, workplaces, plant and equipment;
 - (g) the purchasing of goods and services;
 - (h) the contracting of plant, equipment, services and labour, including contract specification and responsibilities in relation to and of contractors and their subcontractors; and
 - (i) the inspection, maintenance, testing, repair and replacement of plant and equipment.

3.4.2. Risk assessment

1. Risk assessment is a process used to determine the level of risk of injury or illness associated with each identified hazard, for the purpose of control. In determining the level of risk, special attention should be given to such factors as sex, age, disability and reproductive health. All risks should be assessed in consultation with workers and their representatives, and have control priorities assigned, based on the assessed level of risk. The priority for control increases as the assessed level of risk rises.
2. The risk assessment process should take account of the likelihood and severity of injury or illness from the identified hazard. There are many established and recognized methods and techniques that can be implemented for the purpose of risk assessment.
3. Carrying out a risk assessment involves five steps:
 - (a) identification of hazards;
 - (b) identification of who might be harmed and how;
 - (c) an evaluation of the risks and how to control them;
 - (d) recording the results of the assessment and setting priorities for improvement; and
 - (e) reviewing and updating the assessment as necessary.
4. There are many established methods and techniques for carrying out risk assessments. Some use a numerical weighting system to determine priorities for action. For each hazard identified, a numerical value is assigned to the likelihood of the hazard causing harm, as well as to the severity of the consequences. This can be expressed on a rising scale from low to high, as follows:

Likelihood

- (1) Rare: has rarely if ever happened.
- (2) Unlikely: is possible but is not expected to happen.
- (3) Possible: could be expected to happen once a year.
- (4) Likely: will probably occur but is not persistent.
- (5) Almost certain: occurs regularly.

Severity of consequences

- (1) Insignificant: no injury or ill health.
- (2) Minor: short-term impact.
- (3) Moderate: semi-permanent injury or ill health.
- (4) Major: disabling injury or ill health.
- (5) Catastrophic: potentially fatal.

5. The level of risk can be represented in the following manner:

Risk = likelihood x severity

6. By determining the level of risk associated with each hazard identified in the working environment, employers and workers and their representatives can identify areas for priority action. For example, a risk that rarely arises (1) and has insignificant consequences (1) would have the lowest priority (1) (i.e. $1 \times 1 = 1$), whereas a hazardous event that occurs regularly (5) and has potentially fatal consequences (5) would have the highest priority for action (25) (i.e. $5 \times 5 = 25$). The higher the level of risk, the more important it is to apply controls that eliminate, reduce or minimize exposure to the hazard.

7. A sample matrix that illustrates this numerical approach to the determination of level of risk is found below:

Likelihood/severity	Almost certain 5	Likely 4	Moderate 3	Unlikely 2	Rare 1
Catastrophic 5	25	20	15	10	5
Major 4	20	16	12	8	4
Moderate 3	15	12	9	6	3
Minor 2	10	8	6	4	2
Insignificant 1	5	4	3	2	1

8. Priority areas of action can also be determined by evaluating particular hazards in the workplace against the following priority action table. Two questions need to be considered for each hazard: "How often is a person exposed to the hazard?" and "What is the likely outcome?" In the following table, the likelihood of an event occurring is expressed as daily, weekly, monthly or rarely, while the severity of consequences varies from the most severe (death or permanent disability) to the least severe (minor injury requiring only first aid). The areas on the matrix with the darkest shading represent the highest priorities for action.

What is the likely outcome?	How often am I, or other people, exposed to the hazard?			
	Daily	Weekly	Monthly	Rarely
Death or permanent disability	High	High	High	High
Temporary disability	High	High	Moderate	Moderate
Minor injury (first aid)	High	Moderate	Low	Low

- Those carrying out risk assessments may find it useful to record the results of the assessment in a narrative form, specifying the activity or workplace being assessed, the main hazards and those at risk, the level of risk and the measures to be put in place to eliminate, reduce or minimize exposure.

3.4.3. Risk control

- Unless a particular hazard or exposure to the hazard is removed, the risk associated with such a hazard can never be completely eliminated. In such cases, such a risk should be controlled following the order of priority described in section 3.4, paragraphs 3 and 4.
- The employer should plan the management and control of those activities, products and services that can or may pose a risk to safety and health.
- Control measures should be monitored and reviewed at regular intervals and, if necessary, revised, especially when circumstances change or if new information becomes available about the risks identified or the suitability of existing control measures. Control measures should also be reviewed and, if necessary, revised following work-related injuries, ill health, diseases, dangerous occurrences and near misses.

3.4.4. Evaluation

- The processes of hazard identification, risk assessment and control should be subject to a documented evaluation of effectiveness and modified as necessary, to establish an ongoing process for continual improvement.
- Evaluations should take into consideration advances in technology, knowledge and experiences nationally and internationally.
- Practical examples and guidance can be found in *A 5 step guide for employers, workers and their representatives on conducting workplace risk assessments* (ILO, 2014) and the *Training Package on Workplace Risk Assessment and Management for Small and Medium-Sized Enterprises* (ILO, 2013).

3.5. Management of change

- The impact on OSH of internal changes (such as those in staffing or due to new processes, working procedures, factory layout, organizational structures or acquisitions) and of external changes (for example, as a result of amendments of national laws and regulations, organizational mergers, and developments in OSH knowledge and technology) should be evaluated and appropriate preventive steps taken prior to the introduction of changes.
- A workplace hazard identification and risk assessment should be carried out before any modification or introduction of new work methods, materials, processes or machinery. Such

assessment should be done in consultation with and involving workers and their representatives, and the safety and health committee, where appropriate.

3. While much of what happens in textiles, clothing, leather and footwear manufacturing should be covered by established controls developed through the risk management process, there will always be situations that may not be adequately covered by those arrangements. This gives rise to a need to develop and implement processes to identify such “non-routine” work, or instances where established procedures are seen as inadequate.
4. Such non-routine work might include:
 - (a) a type of work that has never been performed before by the team or at the workplace;
 - (b) work that is only performed infrequently;
 - (c) work that is outside normal duties;
 - (d) work that does not have a documented procedure;
 - (e) work that must be performed in a different way to a documented procedure (including due to an approaching deadline or instances where a procedure is identified as inadequate);
 - (f) work done by outside contractors for occasional modifications, repairs or other activities in the factory; and
 - (g) “routine” tasks that carry a particular risk and warrant oversight in the new operating context before proceeding.
5. The key to managing the risks of such work is to halt the ongoing operation to allow for an established degree of assessment before proceeding. This provides an opportunity for situational awareness to be improved before proceeding.
6. Responses to the identification of non-routine work might include:
 - (a) discussion with a supervisor;
 - (b) performance of an “on-the-job” assessment to an established standard before proceeding;
 - (c) performance of a more formal job safety analysis to an established standard prior to the work proceeding;
 - (d) development or revision of a documented procedure to cover the work;
 - (e) conduct of a formal risk assessment and development of appropriate controls; or
 - (f) implementation of an established permit to work system (this is commonly the case for work in a confined space).
7. Arrangements to support this approach should be in place very early on in the development and operation of a factory. It should be made clear, and accepted, that an unacceptable response to non-routine work is to “do nothing”.

3.6. Contingency and emergency preparedness

3.6.1. Emergency preparedness

1. Emergency prevention, preparedness and response arrangements should be established and maintained. These arrangements should identify the potential for accidents and emergencies, and address the prevention of OSH risks associated with them. Arrangements should be made according to the location and environment of the textiles, clothing, leather or footwear factory and also take into account the size and nature of its activities.
2. Employers should develop an emergency action or response plan that considers the nature of emergencies, the key responders in the factory and their responsibilities, and:
 - (a) ensure that the necessary information, internal communication and coordination are provided to protect all people in the event of an emergency at the textiles, clothing, leather or footwear factory;
 - (b) provide information to, and communication with, the relevant competent authorities, and the neighbourhood and emergency response services;
 - (c) address first-aid and medical assistance, firefighting and evacuation of all people at the factory; and
 - (d) provide relevant information, instruction and training to all workers at a factory and any person who may be involved in an emergency, at all levels and according to their competence, including regular exercises in emergency prevention, preparedness and response procedures.
3. Emergency prevention, preparedness and response arrangements should be established by the employer in charge of the textiles, clothing, leather or footwear factory in cooperation with workers, external emergency services and other bodies where applicable.
4. The emergency response plan should be developed locally for each textiles, clothing, leather or footwear factory and should be sufficiently comprehensive to deal with all types of emergencies. The plan should include, for each foreseeable scenario, as a minimum:
 - (a) emergency escape routes and procedures, including signings and markings indicating escape routes to be used;
 - (b) procedures to be followed by workers who remain to perform critical operations before evacuation;
 - (c) the evacuation of the workplace, premises or establishment;
 - (d) procedures to account for all workers after the emergency evacuation is complete;
 - (e) rescue and medical duties for workers who are assigned to perform them;
 - (f) the means for reporting fire and other emergencies; and
 - (g) the provision of relevant information, instruction and training to all persons engaged in work in the factory, at all levels, including regular exercises, at least annually, in emergency prevention, preparedness and response procedures.
5. The emergency response plan should be evaluated periodically with the necessary improvements recorded and implemented.
6. A chain of command should be established to minimize confusion and ensure that workers have no doubt about who has the authority to make decisions. Responsible individuals

should be selected to coordinate the work of the emergency response teams. The responsibilities of the coordinator(s) should include:

- (a) assessing the situation and determining whether an emergency exists that requires activation of the emergency procedures;
 - (b) acting to minimize the event, for example controlling the fire, controlling leaks and spills, emergency shutdown, and action specifically prohibited if persons are at risk;
 - (c) directing all efforts in the area, including evacuating personnel and minimizing the loss of property;
 - (d) ensuring that emergency response services, such as medical aid and fire response are summoned when necessary;
 - (e) providing information to, and communication with, the relevant competent authorities and the neighbourhood and emergency response services; and
 - (f) directing the shutdown of operations when necessary.
- 7.** The necessary and most recent information, as well as internal communication and coordination, should be provided to protect all persons in the event of an emergency at the factory. Alarms should be capable of being seen and heard by everyone.
- 8.** Emergency response teams should be established and capable, among others, of:
- (a) fighting small and local fires they are authorized and trained to handle;
 - (b) first aid;
 - (c) resuscitation;
 - (d) shutdown procedures;
 - (e) evacuation procedures;
 - (f) chemical spill procedures;
 - (g) use of self-contained breathing apparatus and other PPE; and
 - (h) search and rescue operations they have been authorized and trained to conduct.
- 9.** In the absence of formal medical facilities at the textiles, clothing, leather or footwear factory, the following should be provided:
- (a) eye washes, showers or suitable equipment for quick drenching or flushing in the area for immediate use where the eyes or body of any worker may be exposed to injurious corrosive materials; and
 - (b) emergency telephone numbers, or other contact information posted in conspicuous places.
- 10.** Notwithstanding paragraphs 3–7 above, emergency procedures, first aid and firefighting for the handling, storage and transport of chemicals, disposal and treatment of waste chemicals, the release of chemicals resulting from work activities, and containers for chemicals at textiles, clothing, leather or footwear factories should be established and based on the provisions of Chapter 14 of the ILO code of practice on safety in the use of chemicals at work (1993). Where in a factory hazardous substances are stored, transported or processed in such a form and such a quantity that they possess the potential to cause a major accident, the provisions on emergency planning in Chapters 8 and 9 of the ILO code of practice on prevention of major industrial accidents (1991) should apply.

3.6.2. First aid

1. The employer is responsible for ensuring that first aid, including the provision of trained personnel, is available. The manner in which first-aid facilities and personnel are to be provided should be prescribed by national laws or regulations, and drawn up after consulting the competent health authority and the most representative organizations of employers and workers concerned.
2. A sufficient number of workers for every shift should be trained in basic first aid and their contact details should be easily available. This training should include the treatment of open wounds and resuscitation. In areas where the work involves the risk of intoxication by chemicals and other hazardous substances, fumes or smoke, insect bites or other specific hazards, first-aid training should be extended accordingly in consultation with an appropriately qualified person or organization.
3. First-aid training should be repeated at regular intervals to ensure that knowledge and skills do not become outdated or forgotten.
4. Where the work involves a risk of drowning, asphyxiation or electric shock, first-aid personnel should be proficient in the use of resuscitation and other life-saving techniques and in rescue procedures.
5. Suitable rescue and resuscitation equipment, as required, including stretchers and defibrillators, should be kept readily available at the textiles, clothing, leather or footwear factory. All workers should be informed of the location of this equipment.
6. First-aid kits or boxes, as appropriate, containing prescribed items, should be provided and be readily accessible at all workplaces, including isolated locations, transport, and for maintenance teams, and should be protected against contamination by dust, moisture, etc. These first-aid kits or boxes should be clearly marked and contain nothing other than first-aid supplies.
7. First-aid kits and boxes should contain simple and clear instructions, be kept under the charge of a responsible person qualified to give first aid and be regularly inspected and kept properly stocked.
8. If a minimum number of workers as prescribed is employed in any shift, at least one suitably equipped first-aid room or station under the charge of qualified first-aid personnel or a nurse should be provided at a readily accessible place for the treatment of minor injuries and as a rest place for seriously sick or injured workers.
9. Unless there is a hospital or other suitable medical facility nearby and conveniently accessible to the textiles, clothing, leather or footwear factory, a convenient location should be provided, furnished with a sufficient number of beds, together with the necessary equipment and supplies, for the preliminary treatment of injuries or illness and suitable for the temporary use of persons injured at the factory.
10. A first-aid register should be kept at the textiles, clothing, leather or footwear factory for recording the names and gender of persons to whom first aid has been rendered and particulars of injuries and treatment. The register should only be accessible to authorized persons. The register may be made available, excluding confidential information, to the competent authority and the safety and health committee for the purposes of incident and injury analysis.
11. Persons in supervisory positions should hold a recognized first-aid certificate. First-aid training should be made available to all workers.

3.6.3. Rescue

1. Provision should be made for rapid evacuation in the event of injury or illness which requires medical assistance.
2. Transport or a means of communication should be available at the worksite to contact rescue services in case of an emergency. The functioning of the communication arrangements should be checked periodically.
3. All workers should be informed of the procedures to be followed in case of emergency. Information should also be provided on the worksite and on the location of meeting points for evacuation.
4. As mentioned above, a place should be provided at worksites where an ill or injured person can rest in comfort until evacuated.

▶ 4. Reporting, recording and notification of work-related injuries and diseases, ill health and dangerous occurrences

4.1. General provisions

1. In the establishment, review and application of systems for the reporting, recording and notification of work-related injuries and diseases, ill health and dangerous occurrences, the competent authority should take account of the Employment Injury Benefits Convention, 1964 [Schedule I amended in 1980] (No. 121), the ILO Protocol of 2002 to the Occupational Safety and Health Convention, 1981, the List of Occupational Diseases Recommendation, 2002 (No. 194), the ILO List of Occupational Diseases (revised 2010), and the ILO code of practice on recording and notification of occupational accidents and diseases (1996).
2. The competent authority should establish a nationally consistent approach to collecting and reporting statistics on occupational accidents, injuries and diseases. Where possible, the competent authority should promote digital notification systems to reduce the administrative burden.
3. Reporting, recording, notification and investigation of work-related injuries and diseases, ill health and dangerous occurrences are essential for preventive as well as reactive monitoring and should be undertaken to:
 - (a) provide reliable sex-disaggregated information about occupational accidents, occupational diseases and dangerous occurrences at the factory, sectoral and national levels;
 - (b) identify safety and health problems for both women and men arising from textiles, clothing, leather or footwear manufacturing activities;
 - (c) define priorities of action;
 - (d) evolve effective and inclusive methods for dealing with occupational accidents and diseases;
 - (e) monitor the effectiveness of measures taken to secure satisfactory levels of safety and health; and
 - (f) monitor improvements over time and reveal new developments and issues.
4. By national laws or regulations or any other method consistent with national conditions and practice, the competent authority, in consultation with the most representative organizations of employers and workers, should:
 - (a) specify which categories or types of work-related injuries and diseases, ill health and dangerous occurrences are subject to requirements for reporting, recording and notification; these should comprise, as a minimum:
 - (i) all fatal accidents;
 - (ii) occupational accidents causing loss of working time, other than insignificant loss;

- (iii) all occupational diseases; and
 - (iv) commuting accidents and suspected cases of occupational diseases, as appropriate.
- (b) establish and apply uniform requirements and procedures for factory-level reporting and recording of work-related injuries and diseases, ill health, dangerous occurrences and suspected cases of diseases by employers and workers, physicians, health services and other bodies, as appropriate;
 - (c) establish and apply uniform requirements and procedures for the notification of prescribed sex-disaggregated data, and specify, in particular:
 - (i) the respective information to be notified to the competent authority, insurance institutions, labour inspectorates, health services and other authorities and bodies directly concerned, as appropriate;
 - (ii) the timing of the notification; and
 - (iii) the prescribed standardized form of notification to be used;
 - (d) make appropriate arrangements for the necessary coordination and cooperation between the various national authorities and bodies and when two or more factories engage in activities simultaneously at one workplace;
 - (e) make appropriate arrangements for guidance to be provided to employers and workers to help them comply with the legal obligations; and
 - (f) apply these requirements and procedures to all women and men in textiles, clothing, leather and footwear manufacturing operations, regardless of their employment status or type of work performed.
5. For the purpose of prevention, recording, notification and, if applicable, compensation, a national list of occupational diseases should be established by the competent authority, in consultation with the most representative organizations of employers and workers, by methods appropriate to national conditions and practice, and by stages, as necessary. This prescribed list of occupational diseases should:
 - (a) take account of the diseases enumerated in Schedule I to Convention No. 121, as amended in 1980; and
 - (b) comprise, to the extent possible, other diseases contained in Recommendation No. 194 (revised 2010), and the ILO List of Occupational Diseases (revised 2010).
 6. Practical examples and guidance can be found in *Reporting, Recording, and Notification of Occupational Accidents and Diseases: A Brief Guide for Employers and Managers* (ILO, 2021) and in *Reporting, Recording, and Notification of Occupational Accidents and Diseases: A Brief Guide for Workers* (ILO, 2021).

4.2. Reporting at the level of the factory

1. The employer, after consultation with workers and their representatives in the factory, should set up arrangements, in accordance with national laws or regulations, to enable all workers at the site to comply with the requirements to report:
 - (a) forthwith to their immediate supervisor, without detriment to themselves, any situation which they believe presents a danger to life or health; and

- (b) any occupational injury, suspected case of work-related injuries and diseases, ill health and dangerous occurrences, as appropriate.

4.3. Recording at the level of the factory

1. The employer should ensure that records of work-related injuries and diseases, ill health and dangerous occurrences are available and readily retrievable at all reasonable times. Such records should be maintained in accordance with national laws and regulations, where these exist, and should include contractor and subcontractor workers at the factory. In the absence of national laws and regulations on recording at the level of the factory, guidance should be drawn from this code, as well as from other relevant nationally and internationally recognized instruments.
2. In cases in which more than one worker is injured in a single occupational accident, a record should be made for each of the injured workers.
3. Workers' compensation insurance reports and accident reports to be submitted for notification should be considered acceptable as records if they contain all the facts required for recording or are supplemented in an appropriate manner.
4. For inspection purposes and as information for worker representatives and health services, employers should prepare records disaggregated by sex within a period of time to be determined by the competent authority.
5. Workers in the course of performing their work should cooperate with the employer in carrying out the arrangements within the factory for recording and notification of work-related injuries and diseases, ill health and dangerous occurrences.
6. The employer should give appropriate information to workers and their representatives concerning:
 - (a) the arrangements for recording; and
 - (b) the competent person(s) identified by the employer to receive and record information on work-related injuries and diseases, ill health and dangerous occurrences.
7. The employer should provide appropriate information to workers and their representatives on all work-related injuries and diseases, ill health and dangerous occurrences in the factory, as well as commuting accidents, to help workers and employers reduce the risk of exposure to similar events.

4.4. Notification of work-related injuries

1. All fatalities and serious occupational accidents should be notified to the direct family of the accident victim, which should be informed as soon as possible and, as required by national laws or regulations, to the competent authority, the labour inspectorate, the appropriate insurance institution or any other body:
 - (a) immediately after the reporting of an occupational accident causing loss of life; and
 - (b) within a prescribed time for other occupational accidents.
2. Notification should be made within such time as may be specified, and in prescribed specific standardized forms or formats, such as:
 - (a) an accident report for the labour inspectorate;
 - (b) a compensation report for the insurance institution;

- (c) a report for the statistics-producing body; or
 - (d) a single form which contains all essential sex-disaggregated data for all bodies.
- 3.** With a view to meeting the requirements of labour inspectorates, insurance institutions and the statistics-producing body, the forms prescribed in either a specific or single format should include at least the following minimum information:
- (a) factory and employer;
 - (b) injured person (name, address, gender and age; employment status; occupation);
 - (c) type, nature and location of injury; and
 - (d) accident and its sequence (geographical location of the place of the accident, date and time, action leading to injury, type of accident).
- 4.** National laws or regulations should provide for the specification of the relevant necessary information to be notified for commuting accidents and of more detailed information, if available.

4.5. Notification of occupational diseases

- 1.** National laws or regulations should specify that notification of occupational diseases include at least the following information:
- (a) factory and employer;
 - (b) person affected by the occupational disease (name, gender, employment status, occupation at the time when the disease was diagnosed, work history); and
 - (c) occupational disease (name, nature, harmful agents, processes or exposure, description of work, length of exposure, date of diagnosis).

► 5. Safety and health organization

5.1. Occupational health services

1. Consistent with the Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985, the competent authority should make provision for the establishment of occupational health services:
 - (a) by laws or regulations;
 - (b) by collective agreements or as otherwise agreed upon by the employers and workers concerned; or
 - (c) in any other manner approved by the competent authority after consultation with the representative organizations of employers and workers concerned.
2. Occupational health services may be organized as a service for a single factory or as a service common to a number of factories, as appropriate, and by:
 - (a) factories or groups of factories concerned;
 - (b) public authorities or official services;
 - (c) social security institutions or any bodies authorized by the competent authority; or
 - (d) a combination of any of the above.
3. The employer, in consultation with workers and their representatives, should provide for the setting up of, or access to, an occupational health service whose basic function, objective and operation in the establishment should be preventive and supportive to the employer, in particular regarding:
 - (a) the identification and assessment of the risks from health hazards in the workplace;
 - (b) surveillance of the factors in the working environment and working practices which may affect workers' health, including sanitary installations, canteens, childcare and housing, where these facilities are provided by the employer;
 - (c) advice on the planning and organization of work, including the design of workplaces, working-time flexibility, on the choice, maintenance and condition of machinery and other equipment, and on substances used in work;
 - (d) participation in the development of programmes for the improvement of working practices, as well as testing and evaluation of health aspects of new equipment;
 - (e) advice on occupational health, safety and hygiene and on ergonomics and personal and collective protective equipment that is adapted for both women and men;
 - (f) surveillance of workers' health in relation to work (see Appendix I);
 - (g) the adaptation of work to the worker;
 - (h) the contribution to measures of vocational rehabilitation;
 - (i) collaboration in providing information, instruction and training in the fields of OSH, hygiene and ergonomics;
 - (j) the organizing of first-aid and emergency treatment; and
 - (k) participation in analysis of occupational incidents, accidents and diseases.

4. A multiplicity of health hazards is present in textiles, clothing, leather and footwear manufacturing operations and every effort should be made to promote awareness of this fact and of the need to safeguard health.
5. All workers should be subject to health surveillance which should be provided in line with the ILO *Technical and ethical guidelines for workers' health surveillance* (1998) and as prescribed by national laws and regulations. These guidelines require arrangements, in particular regarding the following activities (see Appendix I):
 - (a) organization of workers' health surveillance at different levels;
 - (b) health assessments and collection, analysis and evaluation of information;
 - (c) pre-assignment, regular and post-employment medical examinations; and
 - (d) use of the results and records of workers' health surveillance.
6. The establishment of workers' health surveillance programmes should be based on sound scientific and technical knowledge of textiles, clothing, leather and footwear manufacturing processes and be in accordance with the requirements of the competent authority. A linkage should be established between the surveillance of workers' health and the surveillance of occupational hazards present at the workplace.
7. The surveillance of workers' health should be appropriate to the occupational risks at the workplace. The assessment of the level and type of surveillance appropriate to potential exposure of workers to materials in the production of textiles, clothing, leather or footwear should be based on a thorough investigation of all work-related factors that may affect workers' health.
8. The surveillance of the working environment and planning of safety and health precautions should be performed in line with the requirements in Appendix II of these guidelines and as prescribed by national laws and regulations.

5.2. Safety and health officers

1. In every textiles, clothing, leather or footwear factory, the employer should appoint safety and health officer(s) to be in charge of all matters relating to safety and hygiene at the premises.
2. All safety and health officers should have qualifications and training and be competent to perform this role.
3. At all textiles, clothing, leather or footwear factories at which a minimum number of workers, as prescribed by national laws or regulations, is regularly employed, the safety and health officer should be employed full-time on safety and health activities.
4. Safety and health officers should assist management in the prevention of occupational accidents and diseases, and should in particular:
 - (a) advise management and other persons responsible for OSH, especially on:
 - (i) the planning and installation of plant or machinery and of welfare and sanitary facilities;
 - (ii) the acquisition of working equipment and the introduction of work processes;
 - (iii) the selection of PPE;

- (iv) the organization of work, workspaces, the methods of work and the working environment; and
- (v) other general preventive and protective measures described in this code;
- (b) make appropriate safety inspections of working installations and technical devices, especially before they are put into service, and of processes, especially before they are brought into operation;
- (c) exercise surveillance of OSH measures, and for that purpose:
 - (i) visit workplaces at regular intervals and report any deficiencies to the employer or to other persons responsible for OSH, and propose measures for remedying such deficiencies;
 - (ii) observe whether PPE is being used;
 - (iii) investigate the causes of accidents and diseases and compile reports on the causes and circumstances of every lost-time accident, minor accident and dangerous occurrence, the statistics produced to be such as to ensure their comparability with those of other textiles, clothing, leather or footwear factories;
 - (iv) compile and evaluate the results of investigations and propose to management measures to prevent the occurrence and recurrence of accidents;
 - (v) exercise surveillance over the execution of specific accident prevention measures; and
 - (vi) ensure that official regulations, instructions and other nationally and internationally recognized instruments relating to safety and hygiene are complied with;
- (d) assist workers to comply with the requirements of OSH, and especially instruct them in the occupational hazards to which they are exposed and in the equipment and measures for reducing risk, and cooperate and participate in the periodic training of first-aid workers;
- (e) if necessary to prevent danger, report to the official occupational health services any unsatisfactory conditions as regards safety and health that the employer fails to remedy within a reasonable time; and
- (f) work in close collaboration with the members of the safety and health committee and worker safety representatives, and inform them of all important occurrences and all proposals made.

5.3. Worker safety and health representatives

1. Workers have the right to collectively select safety and health representatives.
2. The safety and health representatives have the following rights:
 - (a) to represent workers in all matters bearing on safety and health in the textiles, clothing, leather or footwear factory;
 - (b) to participate in inspections and investigations conducted by the employer and by the competent authority at the workplace and monitor and investigate OSH matters;
 - (c) to have recourse to advisers and independent experts;

- (d) to consult with the employer in a timely fashion on OSH matters, including policies and procedures;
 - (e) to consult with the competent authority; and
 - (f) to receive, relevant to the area for which they have been selected, notice of accidents and dangerous occurrences.
3. Safety and health representatives should:
- (a) be given adequate information on safety and health matters, enabled to examine factors affecting safety and health, and encouraged to propose measures on the subject;
 - (b) be consulted when major new safety and health measures are envisaged and before they are carried out, and seek to obtain the support of the workers for such measures;
 - (c) be consulted in planning alterations of work processes, work content or organization of work, which may have safety or health implications for the workers;
 - (d) be given protection from dismissal and other measures prejudicial to them while exercising their functions in the field of OSH as workers' representatives or as members of safety and health committees;
 - (e) be able to contribute to the decision-making process at the level of the factory regarding matters of safety and health;
 - (f) have access to all parts of the workplace and be able to communicate with the workers on safety and health matters during working hours at the workplace;
 - (g) be free to contact labour inspectors;
 - (h) be free to consult their representative workers' organizations;
 - (i) be able to contribute to negotiations in the factory on OSH matters;
 - (j) have reasonable time during paid working hours to exercise their safety and health functions; and
 - (k) to receive training related to these functions.
4. Workers and safety and health representatives are entitled to exercise their rights without discrimination or retaliation.
5. Worker safety and health representatives should receive adequate periodic training in all OSH aspects of the work during paid working hours.

5.4. Safety and health committees

1. Employers should establish safety and health committees with representatives of workers and management or make other suitable arrangements consistent with national laws and regulations for the participation of workers in ensuring safe working conditions. Representatives of workers and management should meet regularly, and whenever necessary, to discuss all aspects of safety and health at the textiles, clothing, leather or footwear factory. Either party should be able to call a meeting of the committee and the meeting should take place within a reasonable time frame.
2. The employer should provide the safety and health committee with the facilities, training and assistance necessary to perform its functions, including all necessary safety and health information required for committee representatives.

3. The employer should notify the safety and health committee:
 - (a) as soon as practicable, of any occupational accident, occupational disease or dangerous occurrences at the textiles, clothing, leather or footwear factory; and
 - (b) in good time of any inspection or investigation by the competent authority at the factory regarding which the employer has received advance notice.
4. National laws or regulations should specify the powers and functions of safety and health committees.

5.5. Industry tripartite committees

1. In accordance with national laws and regulations, a tripartite committee should be established, consisting of representatives of employers, workers and the competent authority, which should meet regularly to consider all aspects of safety and health in the textiles, clothing, leather and footwear industries.
2. The tripartite committee should:
 - (a) consider relevant safety and health trends, technology developments and scientific and medical research at both the national and international levels;
 - (b) advise the competent authority on safety and health in these industries;
 - (c) promote a national preventative safety and health culture, which is one in which the right to a safe and healthy working environment is respected at all levels, where governments, employers and workers actively participate in securing a safe and healthy working environment through a system of defined rights, responsibilities and duties, and where the principle of prevention is accorded the highest priority. Building and maintaining a preventative safety and health culture requires making use of all available means to increase general awareness, knowledge and understanding of the concepts of hazards and risks and how they may be prevented or controlled; and
 - (d) recommend action on any safety or health matter which gives it cause for concern.
3. The competent authority should provide the tripartite committee with the necessary information required to perform its functions.
4. The powers and functions of the tripartite committee should be determined by agreement between the competent authority, employers and workers' representatives, or by national laws or regulations.

▶ 6. Building and fire safety

6.1. General provisions

1. It is the responsibility of the employer to ensure, so far as is reasonably practicable, that factories and workplaces are safe and without risk to the health of persons present at or in the vicinity of these factories and workplaces.

6.2. Hazard description

1. Textiles, clothing, leather and footwear factory collapses or fires have resulted in countless injuries and fatalities. Factors that contribute to building and fire-safety hazards include but are not limited to:
 - (a) poorly constructed buildings that have not been designed or approved by the competent authority to be safe for their intended use or to support heavy loads or any additional loads from natural events or disasters;
 - (b) the failure to control flammable and combustible materials and sources of ignition in the factory, and/or to quickly detect the presence of a fire; and
 - (c) lack of fire-prevention and firefighting procedures or equipment to control fires; and
 - (d) lack of or obstructed escape routes and emergency exits.

6.3. Building safety

6.3.1. General provisions

1. All buildings must be planned, designed, constructed and renovated in accordance with national laws and regulations or other national or internationally recognized instruments concerning physical stability, structural integrity, load capacity, fire-prevention and safety measures, and general safety and health.
2. Employers should ensure that all buildings and structures in use for textiles, clothing, leather or footwear manufacturing are safe and that the competent authority has approved their occupancy for the intended operations. New buildings should be purpose-built for the intended textiles, clothing, leather or footwear manufacturing operations and their design and construction should be approved by the competent authority.
3. Every building should have a documented record that accurately describes its design, structure and construction. The employer should keep dated records for:
 - (a) architectural drawings of the building;
 - (b) structural assessments, floor-load ratings of mezzanines, roof loads and other structural documents;
 - (c) building permits;
 - (d) soil tests; and
 - (e) drawings showing approved fire-safety measures and fire-emergency plans.
4. The employer should also keep records of:
 - (a) the most current building safety risk assessment (see below);

- (b) reports of incidents pertaining to building safety; and
 - (c) inspection and maintenance reports.
5. The employer should ensure that these records are available to the competent authority and to workers and their safety and health representatives at all reasonable times. Records should be maintained in accordance with national laws and regulations. In the absence of national laws and regulations, guidance should be drawn from this code, as well as from other relevant national and internationally recognized instruments and guidelines.

6.3.2. Structural assessment

1. Each building should have a valid building permit. The employer should also have a documented structural assessment performed to determine whether the building has been designed and constructed so that it continues to be safe for its specific use, that is its occupancy. The assessment should include at a minimum:
- (a) identification of hazards associated with the design, construction, occupancy and additional factors that could weaken the structural integrity of the building;
 - (b) consideration of additional natural or human-made hazards that might weaken the structural integrity of the building, such as earthquakes, intrusion of water and snow loads on roofs, vibration from generators and machines, and hazards posed by nearby buildings;
 - (c) evaluation of risks associated with these hazards; and
 - (d) identification and implementation of control measures to minimize these risks.

6.3.3. Control measures

1. The employer should develop and implement a policy and procedures to control hazards associated with the occupancy and maintenance of the building and to reduce risks to an acceptable level.
2. Buildings, including floors, mezzanines and roofs, should be designed and constructed to comply with national laws and regulations and the recommendations of the competent authority and to support:
- (a) all dead loads as they may occur;
 - (b) live loads as they may be imposed on the factory during its lifetime, including from the use and vibration of heavy machinery; and
 - (c) any additional loads from expected natural events or disasters that have been identified in the structural assessment.
3. Structural framing systems and components should be designed with adequate stiffness to avoid excessive cracking, deterioration or unsafe conditions due to deflections, vibration or any other serviceability shortcomings.
4. The employer should ensure that the load ratings of the building, including its floors, mezzanines and roofs, have been evaluated and approved by the competent authority during design and construction.
5. Load ratings should be clearly marked on plates, which should be supplied and securely affixed by the owner of the building in a conspicuous place in each space to which they

relate. Such plates should not be removed or defaced, but should be replaced if this happens.

6. The employer should ensure that the loads placed on floors, mezzanines and roofs do not exceed the allowable stress or specified strengths of the materials of construction.
7. Where an employer is starting or modifying textiles, clothing, leather or footwear manufacturing operations in an existing building, she or he should ensure that the design and construction of the building meet all expected requirements. If this is not clear from design documentation or if modifications are made to the building, the employer should complete a structural analysis and, where required by national laws and regulations, should submit the analysis to the competent authority for approval.
8. When a building is not dedicated exclusively to textiles, clothing, leather or footwear manufacturing operations, that is when it has more than one occupancy, each portion of the building or structure should be classified individually in accordance with national laws and regulations and should comply with these.
9. Where more than one occupancy occurs in the same, unseparated space of the building, the most restrictive requirements for each occupancy in respect of fire protection, means of egress, type of construction and allowable building loads, heights and areas should be applied to all other occupancies and these should be complied with.
10. Occupancies for the following uses should in all instances be separated from the main occupancy of the building, in accordance with national laws and regulations for their use and the protection of the safety and health of workers:
 - (a) rooms for boilers or furnaces, generators and fuel tanks, oil-filled transformers, and storage of flammable and combustible liquids, materials and chemicals;
 - (b) parking of motor vehicles; and
 - (c) living accommodation and childcare.
11. The owner of the building should ensure that maintenance and inspections are carried out on a regular basis in accordance with national laws and regulations. Building inspections should as a minimum include all load-bearing structures, including roofs, mezzanines and walls, as well as fire-safety systems, escape routes, manual alarm points and first-aid and firefighting facilities.
12. Older buildings and structures should be subject to periodic inspections more frequently to ensure that they remain safe for their intended use. In cases where older buildings and structures are found to no longer be safe, the employer should cease operations and the building should be vacated until it has been renovated, structurally reinforced or retrofitted. Major renovations, repair, reinforcements, modifications and additions should be approved by the competent authority to ensure that the building complies with national laws and regulations or relevant international standards or codes.
13. The employer should provide relevant information, instruction and training to all workers on building safety and the correct use of the building. This should include information about where it is prohibited and where it is permitted to place loads, as well as the maximum load capacity for each floor, mezzanine and roof.
14. Safety and health officers, worker safety and health representatives and workers with building maintenance responsibilities should receive periodic training in addition to the above in order to assist employers in fulfilling their duties to identify, assess and control building safety hazards and risks. This should include information about national laws and

regulations concerning building safety, hazards and risks pertaining to the building and its operations, and any human-made and natural hazards that might compromise the safety of the building.

6.4. Fire safety

1. There are three basic requirements for a fire to be created and sustained:
 - (a) the presence of fuel or combustible materials;
 - (b) the presence of a source of ignition, including heat; and
 - (c) the presence of oxygen in the air to support the combustion or oxidizing agents.
2. The ability to manage and reduce the risks associated with these three factors will considerably reduce the likelihood of a serious fire.
3. The sequence of events leading to a major fire may include the following:
 - (a) the storage and use of combustible materials in the workplace;
 - (b) the presence of a source of ignition;
 - (c) failure to quickly detect the presence of fire or smoke; and
 - (d) failure to control the fire and extinguish it.

6.4.1. Fire-risk assessment

1. The employer should carry out and regularly review a fire-risk assessment to identify actions to prevent fires and protect workers from fires. The risk assessment should cover the following:
 - (a) identification of fire hazards, taking into account the three basic conditions for a fire to be created;
 - (b) identification of people at risk within and around the factory, paying special attention to those especially at risk, for example workers with disabilities or children in childcare facilities;
 - (c) evaluation of the risk of a fire occurring and the risk to workers from the fire, including the inhalation of smoke and toxic gases, in addition to the heat and burns generated by the fire; and
 - (d) verification that control measures have been put in place to eliminate or reduce these risks, such as:
 - (i) emergency routes and exits;
 - (ii) fire detection and warning systems;
 - (iii) firefighting equipment;
 - (iv) the removal or safe storage of hazardous substances;
 - (v) an emergency fire-evacuation plan;
 - (vi) provisions to address the needs of vulnerable workers, for example those with disabilities; and
 - (vii) the provision of information and fire-safety training to all workers.

2. The fire-risk assessment should take all of the factory into account, including outdoor locations and any rooms and areas that are rarely used.
3. The employer should complement the risk assessment with weekly inspections using weekly inspection sheets such as the one given in figure 2.

► **Figure 2. Example of a fire warden’s weekly inspection sheet**

Fire warden’s name:	Date of inspection:
Area of inspection:	Fire manager sign off:

Have all new workers received fire induction training?	YES	NO
Are all the sources of ignition effectively controlled or managed?	YES	NO
Are safe working practices being followed with respect to ignition sources?	YES	NO
Are housekeeping standards satisfactory?	YES	NO
Are all combustible materials properly stored?	YES	NO
Are all flammable liquids properly stored?	YES	NO
Are the fire escape routes unobstructed?	YES	NO
Are the external doors easily opened from the inside?	YES	NO
Are the smoke/fire detectors all working satisfactorily?	YES	NO
Are the fire extinguishers properly positioned, marked and accessible?	YES	NO
Are the fire extinguishers in a fully functional condition?	YES	NO
Is the company smoking policy being observed properly?	YES	NO
Are the fire assembly points identified and accessible?	YES	NO

Actions required	By whom	By when
A.		
B.		
C.		
D.		

6.4.2. Fire-risk reduction and control measures

1. The competent authority should establish and communicate fire-safety standards based on accepted international practice.
2. Employers should inform themselves about relevant standards, national laws and regulations and the recommendations of the competent authority concerning fire safety.
3. All appropriate measures should be taken by the employer to:
 - (a) eliminate or reduce the risk of fire;

- (b) control quickly and efficiently any outbreak of fire; and
 - (c) bring about a quick and safe evacuation of persons.
4. The employer should appoint a manager to be responsible for fire-management issues and ensure that the fire manager produces a fire-safety management plan (“fire plan”) in consultation with workers and their representatives. This fire plan can be referred to or contained in an emergency plan that also covers other events that require emergency evacuation of the building.
5. The employer should provide for the appointment of a fire warden for each area of the factory and ensure that they are fully trained in their duties and fulfil these. For larger textiles, clothing, leather or footwear factories it might be necessary to appoint fire wardens for specific areas and occupancies. Fire wardens should be responsible for:
- (a) assisting the fire manager in the development and implementation of the fire plan;
 - (b) carrying out daily or weekly checks of the workplace fire safety arrangements, to include:
 - (i) monitoring the fire escape routes to ensure that they are unlocked and free of obstructions;
 - (ii) monitoring the storage of combustible materials;
 - (iii) monitoring the control and minimization of sources of ignition; and
 - (iv) checking the availability of and access to firefighting equipment;
 - (c) ensuring that all persons within their area are able to evacuate should an emergency arise, bearing in mind that special arrangements may be required for workers with disabilities or children in childcare facilities;
 - (d) ensuring that all persons have evacuated their work area in an emergency; and
 - (e) ensuring that only trained workers use firefighting equipment.
6. The fire plan should take into account the following critical elements.

6.4.2.1. Controlling flammable materials

1. All workers should receive information, instruction and training in working safely when handling, storing and using combustible materials, and should be urged to follow them. Employers, managers and supervisors must ensure that these safe systems of work are followed.
2. Combustible materials should be restricted to appropriate areas within the building and suitably stored. The amounts of stored materials should be kept to a minimum.
3. Combustible materials such as paper, fabrics, wood, plastics, packaging materials, chemicals and so on should not be stored beneath staircases or in stairwells, or in close proximity to sources of ignition, such as:
 - (a) heating equipment;
 - (b) electrical cabinets or equipment;
 - (c) places where hot work, such as welding and grinding, is performed; and
 - (d) cookers or smoking areas.

4. Flammable or highly flammable liquids and gas bottles should be securely stored in external storage buildings unless in use, in which case the amount inside the building should be the minimum required, and should be kept in labelled, fire-resistant containers. Gas cylinders should be handled and transported in accordance with the general requirements set out in section 9.4 of this code.
5. The implementation of good housekeeping practices and regular workplace inspections will ensure the effective control of combustible materials in the workplace.
6. The outside of the building should be kept clear of any material that might become combustible in hotter weather (e.g. dry vegetation).
7. Where places are allocated for workers to smoke, these must be kept free of combustible materials.

6.4.2.2. Reducing the potential for ignition

1. The presence of sources of heat or ignition need to be taken into account in relation to the location of combustible or flammable materials.
2. The following control measures should be included in the fire plan:
 - (a) no smoking in the workplace, except where controlled smoking areas are provided;
 - (b) controlled access to minimize the potential for arson;
 - (c) good housekeeping, particularly in areas where hot work is carried out and, once such work is completed, regular checks of the work area to ensure material has not ignited;
 - (d) safe procedures for the burning of waste materials, where this is allowed by national laws and regulation;
 - (e) continuous supervision of heat sources during kitchen work; and
 - (f) effective electrical maintenance and inspection (see below).
3. Faulty electrical wiring and poor electrical maintenance can lead to sparking, overheating or arcing, thus causing ignition. The following special precautions should therefore be observed:
 - (a) electrical equipment should be earthed to minimize the potential for static electricity creating sparks or arcing;
 - (b) each electrical circuit should have an adequate fuse or circuit-breaker located in a fire-resistant cabinet;
 - (c) hardwired circuits should be used, not extension cables, to minimize the potential for damage to the wiring and to prevent the practice of ganging multiple plugs and overloading circuits; and
 - (d) isolators should be arranged and properly identified so that all electrical equipment can be swiftly isolated in an emergency.
4. In confined spaces and other places in which flammable gases, vapours or dusts can cause danger:
 - (a) only suitably protected electrical installations and equipment, including portable lamps, should be used;
 - (b) there should be no naked flames or similar means of ignition;

- (c) there should be notices prohibiting smoking;
- (d) oily rags, waste and clothes or other substances liable to spontaneous ignition should be removed without delay to a safe place and kept in closed containers made of non-combustible material;
- (e) persons wearing clothes likely to cause static electricity or shoes likely to cause sparks should be excluded; and
- (f) adequate ventilation should be provided.

6.4.2.3. Rapid identification and notification of the presence of fire or smoke

1. The provision of detectors connected to an automatic alarm and warning systems is important for rapid identification and early warning of the presence of fire or smoke.
2. Fire detection should be incorporated into buildings at the design and construction stage. Fires can be detected using a variety of electrically powered equipment that may identify the presence of smoke, heat, rapid heat rise or flickering light.
3. National laws or regulations should establish standards requiring automatic fire sensor and warning device systems to be used to actuate deluge-type water systems, foam generator systems, multipurpose dry-powder systems, or other equivalent automatic fire suppression systems.
4. These devices need to be routinely inspected and tested in accordance with national legislation and manufacturers' instructions. Their location and distribution are critical. Their presence is vital, especially in areas of a building where combustible materials or flammable liquids are stored.
5. Notices should be posted at conspicuous places, indicating, if applicable:
 - (a) the nearest fire alarm;
 - (b) evacuation routes and emergency exits;
 - (c) the telephone number and address of the nearest emergency services; and
 - (d) the nearest first-aid post.

6.4.2.4. Effective emergency provision and procedures

1. The employer in charge of the textiles, clothing, leather or footwear factory should provide for the establishment of a team or teams of trained fire wardens compatible with the size of the factory and number of persons employed, to be deployed in the case of fire. The team of fire wardens should be overseen by the fire manager.
2. Ensuring that everyone can evacuate the building in a timely fashion is a vital risk control measure.
3. A workplace should normally have at least two exit routes to permit the prompt evacuation of workers and other building occupants during an emergency. More than two exits may be required if the number of workers, size of building or arrangement of the workplace does not allow workers to evacuate swiftly. Exit routes should be located as far away from one other as possible, but within the maximum distances prescribed by national fire safety codes in case one is blocked by fire or smoke. Additional emergency escape routes may be needed, depending on distances, numbers of people and internal floor distribution.

4. The employer should ensure that all rooms have a sufficient number of fire exits to ensure that all workers can be evacuated in a timely fashion. Depending on the size and shape of the room and the provisions of national fire-safety laws and regulations, closed rooms (such as an office or workstation) may have one exit, so long as the door opens onto an exit route.
5. If the number of occupants or local arrangements allow for all occupants to safely evacuate in an emergency, then one exit route may be acceptable.
6. All fire-escape routes must be visibly marked, wide enough for the maximum number of occupants to pass through in minimal time, and free of obstruction. Most codes stipulate that the determination of exit requirements for a building should be based on the type of use or occupancy of the building, the occupant load, the floor area, the distance to an exit and the capacity of the exits themselves.
7. Depending on the floor area, the number of people, the internal floor distribution and the national fire-safety laws and regulations, higher floors in buildings should be constructed with at least two separate escape routes, preferably at different ends of the building. These escape routes should be protected to delay the ingress of fire and smoke for a sufficient time to allow safe evacuation.
8. Fire-escape routes should be well lit with emergency lighting. All escape routes must lead to a safe place outside the building.
9. All fire-escape routes should be checked on a daily basis to ensure that the routes are unobstructed and that the escape doors can be opened easily.
10. If the employer feels the need to lock final exit doors for security reasons, they must open outwards and be fitted with push-bar releases or locked with mechanisms that can be easily opened from the inside without the need for a key.
11. All workers should be instructed and trained in the fire-escape procedure, which should be the primary OSH element in a worker's induction training.
12. All workers should take part in a fire-escape practice at least annually, whenever layouts change, or in accordance with local codes. This exercise should be observed by the fire manager; it should be followed by a debriefing during which the employer, the fire manager and the fire wardens can establish the success or issues associated with the drill; and any improvement or corrective actions should subsequently be implemented.

6.4.2.5. Control of the fire

1. In accordance with the provisions of internationally recognized instruments and national laws and regulations, firefighting equipment for use by occupants and fire service personnel must be selected and positioned to be as accessible as possible. The fire manager must ensure that the following factors are considered in the firefighting plan:
 - (a) fire extinguishers must be matched to the potential type of fire, from combustible solid materials through flammable liquids and gases/aerosols to metal and electrical fires;
 - (b) fire extinguishers must be located throughout the floor area, within a specified distance of any point and, where necessary, adjacent to a particular hazard area;
 - (c) the firefighting equipment for use by the fire services, such as hose reels and hydrant connections, must be positioned at the exits from the building, so that they can be accessed from a safe position;

- (d) the firefighting equipment must be properly mounted in an unobstructed and marked position;
 - (e) a sufficient number of workers must be selected and trained in the use of the extinguishers;
 - (f) the fire manager must be notified of any use of the extinguishers for any purpose; and
 - (g) the fire extinguishers must be inspected at least weekly, to ensure that they are correctly positioned and fully charged for use.
2. Suitable training, instruction and information should be given to all workers about the hazards of fires, the appropriate precautions to be taken and the use of fire-extinguishing equipment. The training, instruction and information provided should include, in particular:
 - (a) the circumstances in which fire wardens and workers should not attempt to deal with a fire themselves, but should evacuate the area and call in firefighters;
 - (b) when and where to raise the alarm;
 - (c) the action to be taken in the event of fire, including the use of means of escape;
 - (d) the correct use of fire extinguishers for fire wardens and workers expected to use it;
 - (e) the toxic nature of the fumes given off and first-aid measures;
 - (f) the proper use of appropriate PPE; and
 - (g) evacuation plans and procedures.
 3. Prompt reporting to supervisors and to the firefighting department is critical for the control of a fire and for the rescue of workers trapped in a fire. The telephone numbers of emergency contacts should be clearly indicated in workplaces, and means of making such contact should be available.
 4. The spread of a fire should be limited by installing fire-rated compartment walls between the different areas of a building, with fire doors at openings and in corridors. Fire doors slow the rate of spread of a fire, allowing workers more time to evacuate the building.
 5. The specification of fire doors may be dictated by local codes, but will generally be in line with internationally recognized standards.

6.4.2.6. Management of fire risk

1. The numbers of workers and visitors within the building should be known to the fire manager or their appointed deputy.
2. Workers, contractors and visitors must be instructed in the evacuation procedure: when the alarm is given, evacuate without delay, avoiding the use of elevators. The only exception is if a person is assigned to a specific task by the fire or emergency plan. Doors on escape routes should be self-closing so as not to hinder evacuation.
3. Fire wardens should be trained to check that their areas are cleared of people before exiting themselves, then should report to the fire manager or his or her deputy.
4. Having evacuated the building, people must remain in a designated safe area until the fire manager has accounted for them. Under no circumstances must they be allowed to re-enter the building until instructed by the fire manager.
5. Any vehicles carrying flammable liquids or gas bottles should, if possible without increasing the risk to those involved, be moved to a safe distance from the building.

6. Approach routes must be cleared to allow the emergency services easy access to the site.

6.4.2.7. Information, instruction and training

1. All workers should be given formal training on the emergency procedures and fire-management processes as part of their induction training.
2. All workers should be given refresher training on a regular basis, including fire drills in which the building is evacuated and workers go to the designated muster areas.
3. On arrival in the factory, all visitors should be given instructions and information concerning the fire alarm warning system, evacuation routes and fire assembly points.

► 7. Other general preventive and protective measures

1. The employer should take all appropriate precautions to:
 - (a) ensure that all workplaces are safe through the elimination or control of hazards and associated risks to the safety and health of workers; and
 - (b) protect persons present at, or in the vicinity of, a textiles, clothing, leather or footwear factory from all risks which may arise from the site or associated manufacturing operations.

7.1. Prohibition of unauthorized entry

1. Visitors should not be allowed access to a textiles, clothing, leather or footwear factory, unless accompanied by, or authorized by, a responsible and competent person and provided with the appropriate PPE and made aware of emergency procedures and all risks they might be exposed to.
2. Appropriate arrangements concerning access by worker representatives should be established in accordance with national laws and regulations or collective agreements.

7.2. Heating, cooling and ventilation

7.2.1. Heating and cooling

1. Where necessary to prevent danger or preserve health and to provide adequate comfort, workplaces and confined spaces should be:
 - (a) adequately heated in cold weather; and
 - (b) adequately cooled by ventilation in hot weather.

7.2.2. Ventilation

1. Whenever natural ventilation does not ensure safe and healthy conditions with regard to temperature and the composition of the atmosphere, artificial ventilation should be provided.
2. If necessary to prevent danger, local exhaust ventilation should be provided at places where dust, gas, vapour, steam, mist or fumes are formed.
3. Ventilation systems should be installed in abrasive-blasting and spraying workshops as well as in all chemical storage areas, ensuring that the airflow is directed away from workers' tasks, such as handling, mixing or using chemicals and other hazardous substances, and it should be so constructed as to avoid the spread of airborne diseases.
4. The ventilation system should be maintained and inspected regularly.
5. Employers should take particular care with ventilation design where work is undertaken in confined spaces or areas. When fail-safe systems are not in operation, there should be supervision of workers at risk to ensure that they can be removed from danger.

6. If it is not practicable to ventilate workplaces sufficiently to ensure safe and healthy conditions, and in situations where workers are exposed to contaminants, the workers should be provided with suitable respirators (see section 15.6).
7. Compressed air should not be used for ventilation unless supplied by units approved for the delivery of respirable air and the air has been cleaned, temperature controlled and pressure regulated to safe levels.
8. Oxygen should never be used for ventilation.
9. The exhaust from ventilation systems should be directed away from air intakes and from people living near the factory. Polluted or stale air should be so led off that it cannot cause any risk of fire, explosion or illness.

7.3. Housekeeping

1. Poor housekeeping can be a cause of incidents such as:
 - (a) tripping over loose objects on floors, stairs and platforms;
 - (b) being hit by falling objects that have been stored unsafely;
 - (c) slipping on greasy, wet or dirty surfaces;
 - (d) striking against projecting, poorly stacked items of misplaced materials; and
 - (e) cutting, puncturing or tearing the skin of hands or other parts of the body on projecting nails, wire or steel strapping.
2. Effective housekeeping results in:
 - (a) reduced possibility of fire;
 - (b) lower worker exposures to dust, vapours and other hazardous substances;
 - (c) better control of tools and materials, including inventories and supplies;
 - (d) better hygienic conditions leading to improved health;
 - (e) more effective use of space;
 - (f) reduced property damage; and
 - (g) improved morale and productivity.

7.3.1. Control measures

1. A suitable housekeeping programme should be established and continuously implemented at each textiles, clothing, leather or footwear factory. It should cover all areas of the premises and assign responsibilities for clean-up during the shift, for day-to-day cleaning, and for waste disposal, removal of unused materials and inspection to ensure that clean-up is completed.
2. The housekeeping programme should include provisions for:
 - (a) dust and dirt removal;
 - (b) adequate and clean worker-welfare facilities;
 - (c) keeping surfaces of walls, workstations and floors in good condition and passageways and stairways clear;

- (d) clean light fixtures;
 - (e) spill control;
 - (f) the proper storage of materials, tools and equipment;
 - (g) the removal and disposal, at appropriate intervals, of scrap, waste and debris; and
 - (h) regular maintenance and testing of fire-safety systems.
3. Materials should be kept neat and orderly. Loose materials which are not required for immediate use should not be placed or allowed to accumulate on the premises so as to dangerously obstruct means of access to and from the factory, its workplaces, passageways and stairs.
 4. Workplaces, stairs, passageways and exits should be clean. Workplaces and passageways that are slippery owing to water, chemicals or other causes should be cleaned up or strewn with sand, sawdust, ash or the like.
 5. Tools, materials, finished products, packaging materials and other objects should not be left lying about where they could create a tripping hazard.
 6. Scrap, waste, rubbish and dirt should not be allowed to accumulate at workplaces or in passageways. Used wiping materials and rags should be kept in metal containers with self-closing lids.
 7. Heating, ventilation and air-conditioning systems should be cleaned and maintained regularly.
 8. Lint traps in dryers should be routinely cleaned and the lint removed and discarded.
 9. Building roofs and roof drains should be kept clean and unclogged, with adequate protection for workers working at height (see section 7.7).
 10. All sweepings, solid or liquid wastes, refuse and garbage should be removed in such a manner as to avoid the creation of health risks, and as often as necessary to maintain sanitary conditions.
 11. Every enclosed area of a factory should be constructed, equipped and maintained, so far as practicable, to prevent the entrance or harbourage of rodents, insects and other vermin. A continuing and effective extermination programme should be implemented wherever and whenever their presence is detected.

7.4. Material storage and racks

1. Improperly stored and stacked materials can lead to:
 - (a) fractures, cuts and bruises from falling materials; and
 - (b) strains and sprains from lifting loads that are either too large or too heavy.

7.4.1. Control measures

1. The employer should develop and implement safe work procedures for material storage and stacking, including separation of non-compatible materials, stacking limits, stabilization of stacked materials using straps and restraints, and the use of bins, pallets, skids and other safe storage containers.
2. General storage areas should be kept free from accumulated materials to avoid slips, trips and falls and to prevent the harbourage of rodents, insects and other vermin. Combustible

and flammable materials that can cause fires or explosions should be prohibited in general storage areas (see section 6.4.2.1).

3. Storage racks should be designed, constructed and maintained to hold the expected loads of materials and have safe and stable foundations. They should be numbered with signs clearly showing maximum load limits. Inspections should be carried out regularly, and structurally damaged racking should be reported and immediately repaired or replaced.

7.5. Confined spaces

1. Hazards in confined spaces include:
 - (a) poor air quality or visibility;
 - (b) presence of asphyxiants, exposure to chemicals, flammable liquids and gases, combustible dusts and other hazardous substances;
 - (c) slips and trips and other safety hazards;
 - (d) viruses, fungi, moulds or bacteria and other biological hazards; and
 - (e) noise, heat, cold, radiation, vibration and electricity and other physical hazards.
2. Such hazards are also found in a regular workspace but can be even more dangerous in a confined space where conditions can change quickly, the confined entrance and exit may not allow workers to get out in time and the rescue of victims is more difficult. All confined spaces should be considered hazardous and no worker should enter these until a competent person has determined through a risk assessment that it is safe to do so.

7.5.1. Risk assessment

1. The employer should ensure that a competent person carries out an assessment of all risks associated with confined spaces.
2. Based on this risk assessment, the employer should develop and implement written policies and procedures for confined spaces. This should include entry procedures for workers, contractors, subcontractors and suppliers.

7.5.2. Control measures

1. Confined spaces should have signs to prevent inadvertent entry.
2. Where workers are required to enter any area in which a toxic or harmful substance may be present, or may have been present, or in which there may be an oxygen deficiency or a flammable atmosphere, adequate measures should be taken to guard against danger. This should include ensuring that confined spaces do not contain an actual or potential hazardous atmosphere or other hazards capable of causing death or serious physical harm.
3. A permit should be required to enter confined spaces. The permit should include a list of authorized entrants, the purpose of entry and duration of work, the hazards associated with the confined space and how to control them, the acceptable entry conditions, the results of required atmospheric testing and ongoing monitoring, the communication procedures for attendants and entrants, the entry equipment required and the rescue and emergency requirements.

4. Inside a confined space or area, no naked light or flame or hot work should be permitted unless the level of flammable or explosive gas is lower than the level specified in national regulation, and it has been tested and found safe by a competent person.
5. Only explosion-proof lights and tools should be used inside such confined spaces or areas during initial inspection, cleaning or other work required to be done for making the area safe.
6. While a worker is in a confined space:
 - (a) adequate facilities and equipment, including breathing apparatus, first-aid kit, resuscitation apparatus and oxygen, should be readily available for rescue purposes;
 - (b) a fully trained attendant(s) should be stationed at or near the opening and should have no other assignments;
 - (c) suitable means of communication should be maintained between the worker and the attendant(s); and
 - (d) means should be available for the attendant(s) to effect rescue from the confined space without the necessity of their themselves entering it.
7. Confined spaces should be fitted with automatic alarm devices to warn of fires and smoke in the confined space as well as in areas connecting with the confined space.

7.6. Elevators, escalators and material lifts

1. The employer should draw up and implement safe working procedures for elevators, escalators and material lifts, which should at a minimum include the following provisions:
 - (a) elevators, escalators and material lifts should be used and maintained in accordance with applicable laws, regulations and manufacturers' recommendations;
 - (b) elevators, escalators and material lifts should be so positioned or installed as to prevent the risk of injury to users and bystanders;
 - (c) safe working loads should be clearly marked;
 - (d) signs should clearly indicate whether the equipment is intended for passenger use or goods or both;
 - (e) interlocks, barriers and safety devices, where appropriate, should be properly installed and operational to prevent injury;
 - (f) preventive maintenance should be performed regularly, in accordance with applicable laws, regulations and manufacturers' recommendations;
 - (g) all safety-related systems and components should be inspected regularly, in accordance with applicable laws, regulations and manufacturers' recommendations;
 - (h) repair and maintenance should be carried out by competent persons only;
 - (i) barriers and signs should be used to prevent entry when equipment is inoperable or to prevent the operation of equipment when it is being repaired;
 - (j) workers should be informed whether and when it is safe to use elevators, escalators and material lifts in the event of an emergency; and

- (k) all elevators, escalators and material lifts should be kept in good working order and should be inspected and certified as safe to use by competent persons at intervals that meet national laws and regulations.

7.7. Precautions against the fall of persons and materials

1. Fatalities or significant injuries, such as multiple fractures and neck or spinal injuries leading to disabilities, may result from falling from heights, including from platforms, ladders, scaffolds, roofs and through holes in floors or brittle surfaces. Factors that affect the risk of working at height include the vertical distance of falls; fragile or sloping roofs or platforms made of deteriorating materials; unprotected sides and edges of elevated walkways; the status of ramps and access platforms; and unstable or poorly maintained ladders, towers, scaffolds and platforms.
2. Objects falling from a height are a cause of occupational fatalities and injuries. Circumstances that contribute to the likelihood of falling materials include improper storage of materials; poor housekeeping; gaps in platform surfaces; unprotected edges; and incorrect methods of transporting materials, equipment and tools to and from the working area.
3. The competent authority should establish regulations, specifying requirements for fall prevention or work at height. This should include:
 - (a) the requirements for preventing falls from height;
 - (b) the certification, inspection, testing and use of fall-prevention and fall-protection equipment; and
 - (c) the required controls to prevent falling objects striking a person.
4. The employer should perform a risk assessment to identify and assess tasks that involve a risk of a person falling from height. Based on the risk assessment, a fall-prevention programme should be developed. The programme should at a minimum include:
 - (a) written procedures for working at height;
 - (b) information, instruction and training for working safely at height;
 - (c) a process for preparing, testing and implementing emergency rescue procedures for fall scenarios; and
 - (d) the certification, provision, use, inspection, testing and maintenance of fall-prevention and fall-protection equipment.
5. The employer should also perform a risk assessment to identify and assess the situations, tasks or equipment where there could be an unplanned release from height of any object, equipment, component, material, among other things. Particular attention should be paid to work, either routine or non-routine, where persons are working above other persons. Based on the assessment, each textiles, clothing, leather or footwear factory should develop control strategies for the prevention of falling objects or protecting persons from the risk of falling objects.
6. During the planning of any work at height, the employer should determine whether the task could be done more safely in a different way. If this is not the case, there should be processes in place to assess the work and minimize the need for working at any height, including bringing components to ground level to perform maintenance, among other things.

7. In any case, where there is a risk of falling, greater than the height specified by national regulations, either fall-prevention or fall-protection equipment or systems should be used.
8. The employer should develop a procedure to define barricading requirements where there is a risk of falling off an unprotected edge and barricading or protective covers where there is a risk of falling through an opening. The procedures should also address the control measures required to prevent or protect a person from falling through a brittle surface, for example, working on or accessing roofs, among other things.
9. Where elimination of the fall risk through barricades or protective covers is not possible, there should be a process to reduce the risk of falling by using fall-prevention measures that include:
 - (a) fixed and temporary work platforms, access ways, barriers, and so forth, including scaffolding, among other things; and
 - (b) fall restraint, which should only be used when elimination of the fall risk, the use of work platforms or hard barricading cannot be used. Fall restraint should prevent a person reaching a position at which there is a risk of a fall and consist of a harness, connected by a lanyard to an anchorage point or static line.
10. Fall-prevention measures should be designed, installed, stored, maintained and certified in accordance with national laws and by competent, authorized persons. There should be processes and procedures for the inspection, maintenance, testing and certification of these.
11. Wherever practical, a safe working area should be provided by means of work platforms or scaffolds that have complete floors, guardrails, toeboards, and safe access and egress.
12. Where mobile work platforms are used for fall prevention, there should be a process for ensuring these are compliant with national laws and regulations or nationally and internationally recognized instruments and that they are inspected to manufacturers' preoperational check requirements prior to use. When operating a mobile work platform:
 - (a) a competent and authorized person should be designated to control the mobile work platform and that person should be inside the basket; and
 - (b) every person in the mobile work platform basket should be attached to an approved anchorage point at all times.
13. Where the above fall-prevention strategies cannot be used, fall-protection or fall-arrest systems should be used. A fall-arrest system should only be used where a person:
 - (a) can reach a position where a fall is possible;
 - (b) has a lanyard, adjustable in length, so the unprotected edge can be reached; and
 - (c) is working on a surface that may not hold their weight.
14. The fall-arrest system should consist of:
 - (a) an approved body harness;
 - (b) a shock-absorbing lanyard, where the potential to fall is greater than 4 metres or a short restraining lanyard, where the potential to fall is less than 4 metres;
 - (c) double or triple action snap hooks (or karabiner type rings); and
 - (d) secure anchorage points or static lines.

15. There should be a process for ensuring that arrest equipment, including harnesses, shock-absorbing lanyards, hooks or rings are tested and certified for use; inspected by the user before use; and destroyed after a fall or where inspection shows evidence of excessive wear or mechanical malfunction.
16. Permanent anchorage points should be designed and rated to take the required load and be periodically inspected by a competent person. Temporary anchorage points must be assessed by a competent person prior to use to ensure they can support the required load.
17. Work from portable ladders should be minimized (see section 7.8).
18. Where overhead work is being conducted, barricading should be erected around the work area to prevent people accessing the drop zone and there should be controls in place to prevent tools, equipment or other objects from falling.
19. Waste materials or objects should not be thrown down from heights. If material and objects cannot be safely lowered from heights, adequate precautions should be taken, such as the provision of fencing or barriers.
20. Physical safeguards such as toeboards and brickguards should be installed to prevent materials from falling. Loose articles should not be left lying about in places where they could fall on persons underneath. Materials should never be stacked near edges, particularly unprotected edges.
21. Workers employed at elevated workplaces should be provided with tool belts and containers for screws, bolts, nuts and the like.
22. There should be training and competency assessment in accordance with national laws and regulations or other nationally and internationally recognized instruments so that relevant persons are trained and deemed competent to:
 - (a) work at heights;
 - (b) issue working at heights permits;
 - (c) design, erect, dismantle, maintain and inspect work platforms and scaffolds;
 - (d) design, install, inspect and maintain anchorage points and static lines;
 - (e) operate and maintain mobile work platforms; and
 - (f) inspect and maintain scaffolding and working at heights equipment.

7.8. Ladders and stepladders

1. Work on ladders and stepladders is hazardous and a high-risk activity, which can lead to fatalities and serious injuries. The following factors greatly increase the risks associated with ladders:
 - (a) using a ladder where a safer method is required;
 - (b) failure to secure and foot the ladder correctly;
 - (c) unsafe use of ladders;
 - (d) defective ladders;
 - (e) using unsuitable or slippery surfaces as a base for the ladder;
 - (f) insufficient handhold at the top of the ladder or at the stepping-off position;

- (g) insufficient foothold at each rung;
 - (h) electric shock resulting from the use of a ladder near overhead electrical cables;
 - (i) tools not properly secured while the ladder is being used; and
 - (j) use of ladders in poor light or in high winds.
2. The employer should determine the required number and types of ladders to be provided, taking into account national laws and regulations and the work to be carried out. He or she should perform an assessment to identify the hazards and risks associated with the intended use of each type of ladder.
 3. A simple checklist should be developed to ensure that action has been taken to identify all hazards and that appropriate control measures have or will be taken to reduce risk to an absolute minimum.

7.8.1. Control measures

1. Ladders and stepladders are not designed to replace working platforms. If a task requires staying up for more than 30 minutes at a time, the use of mobile work platforms or scaffolds should be considered.
2. Leaning ladders should be used only as a temporary way to access points of work. The angle should be approximately 75 degrees or a 1:4 ratio. Where it is reasonably practicable to do so, the ladder should be secured.
3. Stepladders should, to the extent possible, be faced towards the work activity and not side on. However, there could be occasions when a risk assessment may show it is safer to work side on, for instance in a storage room when the locks of the stepladder cannot be engaged due to space restraints in narrow aisles, and when it can only be fully locked when working side on.
4. The employer and workers should inspect ladders and stepladders prior to use, including the stiles, feet, rungs, and locking mechanisms. They should be free from sharp edges and splinters; there should be no broken, bent, cracked or worn steps, rungs or side rails; and the platform of stepladders should not be split or buckled. If the ladder is damaged, it must be removed from service and tagged until repaired or discarded.
5. Ladders and stepladders should be maintained free of oil, grease and other slipping hazards. Rungs or steps of metal ladders should be corrugated or treated to prevent slipping.
6. Rungs, cleats and steps of ladders must not be spaced less than 25 cm apart, nor more than 36 cm apart, along the ladder's side rails.
7. Labels and markings on the ladder and stepladder should be read and followed. Ladders and appropriate accessories (for example ladder levellers, jacks or hooks) should be used only for their designed purpose. Ladders must not be used beyond their maximum intended load nor beyond their manufacturer's rated capacity.
8. Unless secured to prevent accidental movement, ladders and stepladders should be used only on stable, level and non-slippery surfaces. All four feet of stepladders should be in contact with the ground and the steps should be level.
9. When placed in areas such as passageways, doorways or driveways, or where they can be displaced by workplace activities, ladders and stepladders should be secured to prevent

accidental movement, or a barricade should be used to keep traffic or activity away from the ladder.

10. Ladders used to access another level should be tied and should extend at least 1 metre beyond the platform to provide a secure handhold. Stepladders should not be used to access another level, unless they have been specifically designed for this.
11. Areas around the top and bottom of ladders and stepladders should be kept clear.
12. Before using the ladder, workers should check overhead and should not use ladders near power lines or exposed energized electrical equipment. Metal ladders should not be used in proximity of electrical equipment.
13. Workers using ladders and stepladders should:
 - (a) leave both hands free and maintain three points of contact when climbing up and down;
 - (b) face the ladder;
 - (c) avoid wearing slippery boots or shoes;
 - (d) avoid carrying heavy or bulky loads that could cause loss of balance and falling;
 - (e) not work off the top three rungs; and
 - (f) ensure that the ladder is long enough or high enough for the task and avoid overreaching.
14. Ladders and stepladders should not be used by more than one worker at the same time. Ladders and stepladders should not be moved while a person or equipment is on the ladder.
15. If objects have to be carried by workers on ladders, tool belts or other suitable means should be provided and used for the purpose.
16. Painted wooden ladders and improvised, home-made hand ladders should not be used.
17. To ensure effective inspection, ladders and stepladders should never be painted or coated in any way that could conceal defects or cover up the manufacturers' specifications or capacity labels.
18. Workers should be trained and instructed in the correct and safe use of ladders and stepladders.

7.9. Signs, notices, colour codes and communication

1. Signs and symbols are a very effective method of warning against hazards and of presenting information in a non-linguistic form. Safety signs and notices should conform in shape and colour to the requirements of the competent authority, in accordance with national laws and regulations.
2. The employer should:
 - (a) establish policies and procedures for using safety signs to warn workers of risks and communicate control measures;
 - (b) provide workers with training to recognize and understand the meaning of the hazard warning signs and labels in use at the factory;

- (c) routinely inspect all signs and labels to make sure that they are in place, are maintained in good condition, are visible and function as intended; and
 - (d) ensure there are adequate number of signs and labels to communicate hazards.
- 3.** Signs should be posted to ensure that workers are not unnecessarily exposed to hazards and risk. These should be:
- (a) displayed clearly;
 - (b) large enough to be visible to those intended to see them;
 - (c) presented in forms, symbols, pictograms and languages easily understood by all workers;
 - (d) consistent in colour, pictorial representation and wording throughout the factory; and
 - (e) constructed so they resist corrosion and weather effects.
- 4.** Essential signs, such as emergency exit signs, should be illuminated so that they are visible when it is dark or foggy or if there is smoke. These signs should be properly maintained and replaced or removed when no longer valid.
- 5.** The contents of portable fire extinguishers should be indicated by a colour code, in compliance with the requirements of the competent authority. Each fire extinguisher should have a label affixed to it providing instructions for its use.
- 6.** Gas cylinders should be clearly marked with the name and symbol of the gas and the body should be coloured according to its contents. A colour coding card should be provided.
- 7.** Protocols for communicating via radios or other electronic means should be established to ensure that the risk of misunderstanding is minimized, particularly for critical information. These protocols should be conveyed to all involved in such activities and strictly monitored.

▶ 8. Biological hazards

8.1. Hazard description

1. Textiles, clothing, leather or footwear manufacturing may expose workers to biological agents such as bacteria, viruses, fungi, other microorganisms and their associated toxins. For example, leather and textiles workers may be exposed to anthrax when handling hides and wool that have been contaminated by spores.
2. Some biological agents, including various types of mould and legionella bacteria, are found in the natural and built environment. Others, such as the Zika virus, are transmitted by insect vectors. Many biological agents are capable of directly or indirectly spreading from person to person. They include but are not limited to blood-borne pathogens, such as HIV and hepatitis, and highly infectious influenza viruses such as the Avian Flu and the novel coronavirus (COVID-19). The health effects of biological agents range from skin irritation and allergies to cancer, infectious diseases and death.

8.2. Risk assessment

1. The competent authority should establish safety standards with regard to occupational exposure to biological agents. Such standards should be based on sound scientific criteria and accepted international practice.
2. Employers should inform themselves about relevant standards, national laws and regulations and the recommendations of the competent authority. They should carry out a risk assessment to determine the measures required to eliminate the hazards associated with biological agents or the control strategies required to minimize workers' exposure. As a part of this assessment, the employer should consider that some workers, contractors, subcontractors and suppliers may be more at risk than others, including older workers, workers with underlying medical conditions and women of childbearing age, in particular pregnant workers.
3. When textiles, clothing, leather or footwear manufacturing operations involve exposure to several biological agents, the risks to workers should be assessed on the basis of the danger presented by all hazardous biological agents present. The risk assessment should take into account all available information on diseases that might be contracted as a result of the work, the potential allergenic or toxigenic effects, and existing knowledge of a disease from which a worker in the factory is found to be suffering and which has a direct connection with his or her work. The assessment should be renewed regularly and in any event when any change occurs in the conditions that might affect workers' exposure to biological agents. This includes, but is not limited to, new pandemic outbreaks.

8.3. Control measures

1. The competent authority should make available information on the prevention of biological agents and provide appropriate support services with regard to public health and occupational health measures.

8.3.1. Elimination

1. The employer should avoid the use of a harmful biological agent if the nature of the textiles, clothing, leather or footwear manufacturing operation so permits. This can be done by substituting a biological agent that is not dangerous or is less dangerous to workers' health.
2. The employer should also undertake to eliminate the occurrence of biological agents through a combination of disease-eradication measures; vaccination; provision of safe water supplies; proper disposal of human and animal waste; sanitation of buildings, workspaces and housing; cleaning and protection of open wounds; and use of PPE.
3. Control technologies and preventive behaviours should be conceptualized in terms of pathways, agents and hosts, and should be specifically targeted to the routes of transmission of biological agents: direct contact, indirect contact, droplet, airborne, common source and vector-borne transmission.

8.3.2. Reduction of risks

1. Where the results of the assessment reveal a risk to workers' safety and health, the risk of exposure should be prevented or reduced to as low a level as necessary through measures such as the following:
 - (a) keeping as low as possible the number of workers exposed or likely to be exposed;
 - (b) design of work processes and engineering control measures so as to avoid or minimize the release of biological agents into the place of work;
 - (c) collective protection measures and, where exposure cannot be avoided by other means, individual protection measures;
 - (d) hygiene measures compatible with the aim of the prevention or reduction of the accidental transfer or release of a biological agent from the workplace;
 - (e) use of the biohazard sign and other relevant warning signs;
 - (f) drawing up plans to deal with accidents involving biological agents;
 - (g) testing for the presence of biological agents used at work;
 - (h) means for safe collection, storage and disposal of waste by workers, including the use of secure and identifiable containers, after suitable treatment where appropriate; and
 - (i) arrangements for the safe handling, storage and transport of biological agents in the workplace.

8.3.3. Hygiene and worker protection

1. The employer should take appropriate measures to ensure that:
 - (a) procedures are specified for taking, handling and processing materials of animal origin, such as skin, hides, wool, feathers;
 - (b) workers do not eat or drink in working areas where there is a risk of contamination by biological agents;
 - (c) workers are provided with appropriate washing, toilet facilities and housing, which should include eye washes and skin antiseptics; and
 - (d) workers are provided with appropriate PPE or other appropriate special clothing, at no cost to workers (see Chapter 15).

8.3.4. Vaccination

1. When necessary and where effective vaccines exist, the employer should offer these to workers who are not already immune to the biological agent to which they are exposed or are likely to be exposed.
2. Vaccination should be carried out in accordance with national laws and regulations.
3. Workers should be informed of the benefits and drawbacks of both vaccination and non-vaccination.
4. Vaccination should be offered free of charge to workers.
5. A certificate of vaccination should be drawn up and made available to the worker concerned and to the competent authorities on request.

8.3.5. Information, instruction and training

1. The employer should take appropriate measures to ensure that workers and their representatives receive sufficient and appropriate information, instruction and training concerning:
 - (a) potential risks to health;
 - (b) precautions to be taken to prevent exposure;
 - (c) hygiene requirements;
 - (d) correct wearing and use of PPE and clothing; and
 - (e) steps to be taken by workers in the case of incidents and to prevent incidents.
2. The training should be:
 - (a) given at the beginning of work involving contact with biological agents;
 - (b) adapted to take account of new or changed risks; and
 - (c) repeated periodically, if necessary.

8.3.6. Information and notification

1. The employer should provide written instructions at the workplace and display notices, which should include the procedure to be followed in the case of a serious outbreak, accident or incident involving the handling of a biological agent.
2. The employer should immediately inform workers and their representatives when an accident or incident occurs that has resulted in the release of a biological agent and that could cause severe human infection and illness, specifying the causes thereof and the measures taken or to be taken to rectify the situation.
3. Workers should immediately report any accident or incident involving the handling of a biological agent to the employer or to the safety and health officer(s).
4. In accordance with national laws and regulations, the employer should notify the competent authority in case of any accident or incident involving biological agents. All cases of diseases or death identified in accordance with national laws and regulations as resulting from occupational exposure to biological agents should be notified to the competent authority.

8.3.7. Surveillance of workers' health and the working environment

1. In accordance with the ILO *Technical and ethical guidelines for workers' health surveillance* (1998), all workers at risk of exposure to a biological agent should be subject to relevant health surveillance prior to exposure and at regular intervals thereafter.
2. The surveillance of workers' health and of the working environment and the planning of safety and health precautions should be performed in line with the requirements in Appendix I and II of this code and as prescribed by national laws and regulations.
3. If a worker is found to be suffering from an infection or illness that is suspected to be the result of exposure to a biological agent, health surveillance should be offered to other workers who have been similarly exposed.

8.4. Special provisions for COVID-19 and other highly infectious viruses and communicable diseases

1. In the case of an outbreak of COVID-19 and other highly infectious viruses and communicable diseases, the competent authority should quickly make all information available about the virus or disease and provide appropriate support services and public health and OSH measures to prevent and control it.

8.4.1. Planning, systems and resources

1. The employer should develop, test and implement a preparedness and response plan for the prevention and control of COVID-19 and other highly infectious viruses and communicable diseases, in consultation with workers and their representatives. The preparedness and response plan should be developed in accordance with national laws and regulations and in line with international standards and guidance.
2. The preparedness and response plan should be developed on the basis of a risk assessment, which should be carried out jointly with workers and their representatives. The plan should cover all potential sources of exposure and other compounding factors, including contamination in the factory and in housing made available for workers, as well as interaction:
 - (a) among workers;
 - (b) with contractors, subcontractors, suppliers, customers and visitors; and
 - (c) with the local community.
3. The preparedness and response plan should consider all work areas and tasks performed by all workers, irrespective of their status and contractual arrangements, as well as the special needs of certain groups of workers, including but not limited to pregnant workers, workers with disabilities, and workers with family responsibilities and dependants.
4. The employer should allocate resources for the implementation of the preparedness and response plan for the prevention and control of COVID-19 and other highly infectious viruses and communicable diseases. This includes but is not limited to ensuring:
 - (a) a sufficient supply of soap, disinfectant, hand sanitizer, paper towels and tissues;
 - (b) sufficient stocks of PPE to protect both women and men from COVID-19 and other highly infectious viruses and diseases, including but not limited to face masks, face shields, gloves and glasses;

- (c) signs and floor/lane markings to ensure compliance with physical distancing requirements;
 - (d) the availability of “no-touch” thermometers for screening workers, contractors, subcontractors and suppliers;
 - (e) identification of areas for pre-screening, isolation and quarantine; and
 - (f) upgrading existing medical facilities with necessary equipment for testing, treatment of care, or putting in place arrangements for safe transfer to nearby hospitals or health clinics at no cost to workers.
5. The employer should establish a task force with clearly assigned roles and responsibilities to execute the preparedness and response plan. Members of safety and health committees, safety and health officers, worker safety and health representatives and medical staff of the textiles, clothing, leather or footwear factory should be included in the task force, which should include proper representation from every section of the factory. All members of the task force and other key workers should be trained in the execution of the plan and in the prevention and control of COVID-19 or other highly infectious viruses and communicable diseases.
6. The employer should clearly communicate the preparedness and response plan and its commitment and policies to prevent and reduce the risk of exposure to and transmission of COVID-19 and other highly infectious viruses and communicable diseases for all workers. This should be done through induction training, training on assigned tasks, floor-level training and the posting of the name of task force members.
7. The preparedness and response plan should be implemented, monitored and improved on an ongoing basis. Occupational health services and local, regional or national public health authorities should be consulted on a regular basis to ensure that the best and most recent guidance and advice is incorporated into the plan. Both progress and issues in the implementation of the plan should be reported to the employer, safety and health officers, and worker safety and health representatives.

8.4.2. Information, training and communication

1. The employer should inform, instruct and train workers on the measures adopted to prevent risk of exposure to COVID-19 and other highly infectious viruses and communicable diseases, as well as on how to act in case of infection. The information, instruction and training should:
- (a) be based on unique risks pertaining to different textiles, clothing, leather and footwear occupations and tasks;
 - (b) include the correct use, maintenance and disposal of PPE; and
 - (c) be provided in a systematic, timely and culturally appropriate manner, in forms and languages easily understood by all workers, and on an ongoing basis.
2. The employer should establish a system to provide up-to-date and reliable information to workers, contractors, subcontractors and suppliers on the emerging situation and how to prevent the spread of COVID-19 and other highly infectious viruses and communicable diseases in the textiles, clothing, leather or footwear factory and in the local community. The information should be:

- (a) based on the most up-to-date information and guidance released by the World Health Organization (WHO) and national or local health authorities;
 - (b) clearly disseminated in posters and signs displayed throughout the factory, in forms and languages easily understood by all workers and in a culturally appropriate way;
 - (c) integrated into factory induction plans for workers, contractors, subcontractors and suppliers;
 - (d) integrated into existing instruction and training programmes; and
 - (e) disseminated through the best available delivery mechanism, such as the public announcement system, mobile phone text messages, social media applications, posters, newsletters, leaflets and emails.
3. The employer should regularly communicate critical information to contractors, subcontractors, suppliers and workers through their representatives, using electronic means, where possible, and applying strict physical distancing controls where floor-level and other face-to-face meetings are necessary.
4. Workers should be informed that they have the right to remove themselves from any workplace in the factory when circumstances arise that appear, with reasonable justification, to pose a serious danger to their safety or health.
5. Workers should also receive information about:
- (a) paid sick leave, flexible leave arrangements, sickness benefits and parental or care leave, especially where these have been expanded;
 - (b) arrangements for working from home or teleworking, where these exist for certain occupations;
 - (c) the need to stay at home if workers or a family member or dependant is sick or exhibits symptoms related to COVID-19 and other highly infectious viruses and communicable diseases, and should be informed that:
 - (i) there will be no retaliation for taking sick leave if they display symptoms;
 - (ii) no doctor's prescription or leave certificate for workers who are sick with symptoms is necessary to validate their illness or return to work; and
 - (iii) no certification or documentation will be required if workers have to take leave to provide care and support to their family or dependants;
 - (d) factory medical services and healthcare facilities; and
 - (e) related care services in the factory or local community for workers who are in need of counselling, legal advice and shelter, such as in the case of victims of domestic violence.

8.4.3. Control measures

1. In textiles, clothing, leather or footwear factories where it is not possible to eliminate the risk of exposure to COVID-19 and other highly infectious viruses and communicable diseases completely, the employer should implement a combination of control measures in line with the following hierarchy of controls.

8.4.3.1. Engineering controls

1. The layout of machinery and workstations should be adjusted so that it provides physical distancing of a least 2 metres (6 feet) from other workstations and machinery. Where this is not possible, physical segregation barriers should be introduced to reduce the risk of contamination.
2. Canteen facilities and dining areas should be modified by providing barriers or ensuring that physical distancing rules can be observed.
3. High-efficiency particulate air filters should be used in ventilation systems to remove aerosols from the air before it is returned to general circulation.
4. Ventilation systems should be inspected, maintained and cleaned more frequently during pandemic outbreaks in order to prevent transmission.

8.4.3.2. Administrative controls and work planning

1. Unnecessary access to the factory should be restricted to a minimum, including by monitoring and approving all visits and factory deliveries and by restricting unscheduled access by workers, contractors, subcontractors, suppliers and visitors.
2. The employer should establish a quarantine and checking area for supplies brought into the factory. Workers who manage incoming supplies should be trained on risks and control measures when handling raw materials, accessories, machinery, tools and packages. Measures should also be put in place to assist delivery workers, truck drivers and other transportation workers to minimize direct contact with other workers at transfer points and to ensure personal hygiene practices, such as hand-washing and the use of sanitizers.
3. Measures should be put in place to reduce the number of workers in the factory, including by:
 - (a) reducing non-essential work;
 - (b) promoting working from home or teleworking from another location, where possible; and
 - (c) limiting overtime work to a minimum.
4. Measures should also be put in place to avoid large numbers of workers congregating in specific workspaces, including:
 - (a) additional entrances and exits to spread the flow of workers;
 - (b) one-way footpaths and signs to control pedestrian traffic and avoid workers having to pass each other too closely;
 - (c) planning and staggering of work operations and breaks;
 - (d) staggered shifts and split crews;
 - (e) workers remaining on the same shifts together; and
 - (f) holding meetings online, where possible, or in spaces large enough to permit physical distancing.
5. Physical distancing measures should be introduced, clearly communicated and observed in all areas of the factory, including entrances and exits; hallways and lifts; gatherings and meetings; meeting rooms and open offices; cafeterias and kiosks; restrooms and lockers; and childcare facilities and housing. Workers should be encouraged to report anomalies.

6. Work planning should take into account the elevated risks of exposure among older workers, workers with pre-existing medical conditions or disabilities, women of childbearing age and pregnant workers, and those workers should be provided with opportunities to work from home, where possible.

8.4.3.3. Hygiene and cleaning

1. The employer should promote and implement good industrial hygiene practices, such as the regular disinfection of workplaces, including the sanitization of machinery, tools and equipment, particularly during shift changes.
2. The employer should also promote good personal hygiene practices, such as covering the mouth and nose when coughing or sneezing, and a culture of hand-washing and regular wiping of work surfaces, equipment and tools with disinfectants.
3. Posters with information about personal hygiene and hand-washing should be clearly displayed throughout the factory.
4. Workers, contractors, subcontractors, suppliers and visitors should be provided with ample and easily accessible places where they can wash their hands with soap and water and disinfect their hands with alcohol-based sanitizers. Hand-washing stations should be equipped with single-use, clean and dry cloths, single-use towels or hand driers.
5. Alcohol-based sanitizers should be set up in prominent places around the factory, including at all entrances and exits. They should be refilled regularly and kept separate from ignition sources.
6. Appropriate face masks and paper tissues should be provided and made easily available for use by those who develop a runny nose or cough, along with closed bins for hygienically disposing of them.
7. All areas of the factory should regularly be disinfected with appropriate cleaning supplies by dedicated cleaning staff using PPE such as disposable gloves, protective suits and facemasks. Special attention should be given to:
 - (a) tools;
 - (b) equipment;
 - (c) controls;
 - (d) machines;
 - (e) materials;
 - (f) tables;
 - (g) chairs;
 - (h) phones;
 - (i) computer screens, mouses and keyboards;
 - (j) workstations;
 - (k) meeting rooms;
 - (l) common areas;
 - (m) walls;
 - (n) floors;

- (o) screens;
 - (p) railings;
 - (q) doorknobs;
 - (r) lifts;
 - (s) forklifts;
 - (t) trolleys;
 - (u) kiosks;
 - (v) housing;
 - (w) restrooms; and
 - (x) toilet seats.
8. Special attention should be given to childcare facilities; rooms for breastfeeding; kitchen and canteen furnishings, utensils, cutlery and dishes; vending machines; and water dispensers and drinking glasses.
 9. Frequently used facilities and frequently touched surfaces and equipment should be disinfected more often, particularly before the commencement of operations and at shift changes.
 10. Thorough cleaning and disinfection procedures for all PPE should be established and reviewed.

8.4.3.4. Personal protective equipment

1. Face masks should be provided to all workers as prescribed by national laws and regulations.
2. Face masks should comply with technical standards set by the competent authority or recognized by national or international bodies.
3. The correct use of face masks and other PPE should be monitored and reinforced.
4. All used PPE should be collected in separate waste bins.

8.4.3.5. Worker health surveillance, self-monitoring and contact tracing

1. The employer should establish or use a pre-existing system for the regular health surveillance of workers (see Chapter 5, section 5.1). The system should be updated to include a register of high-risk or vulnerable persons.
2. The employer should engage occupational health services and local, regional or national public health authorities to ensure access to free testing for COVID-19 and other highly infectious viruses and communicable diseases.
3. Workers should be provided with advice and instructions on how to self-monitor and report on the most common symptoms. They should be informed about when to self-quarantine and what to do in case of an emergency.
4. Measures should be put in place to screen workers, contractors, subcontractors, suppliers and visitors at site entrances, including but not limited to temperature checks and health questionnaires.

5. The employer should prepare a separate quarantine room where workers with symptoms can be isolated from other workers.

8.5. Special provisions for HIV and AIDS and other blood-borne pathogens

1. The employer should take steps to prevent the transmission of HIV and other blood-borne pathogens, particularly with respect to emergency response. Universal precaution should be applied with respect to first-aid and other medical procedures and to the handling of other potentially infected material.
2. The employer should implement measures to eliminate or reduce the risk of occupational exposure to HIV and AIDS and other blood-borne pathogens, with particular attention to ensuring the following:
 - (a) prevention of contact with blood, body fluids or other potentially infectious materials;
 - (b) readily available hand-washing facilities and disinfectants for potential blood-borne pathogen contaminated spills;
 - (c) PPE for exposed workers;
 - (d) safe disposal of glass, blades, sewing needles and other sharp objects, equipment, products or materials suspected to be contaminated with blood-borne pathogens in biohazard-labelled bags and containers, in accordance with national laws and regulations;
 - (e) clear procedures for reporting and handling blood exposure accidents, including contact numbers to call in the event of an accident, immediate actions to be taken to reduce the risk of contamination and the methods of monitoring the affected person's health and serological status;
 - (f) allowing workers access, at no cost to them, to post-exposure prophylaxis, which should be operated under a strict respect of confidentiality of personal and medical data and medical secrecy; and
 - (g) collaboration with occupational health services to provide free access to confidential and free vaccination against hepatitis B and screening tests for hepatitis B, HIV and hepatitis C.
3. HIV and AIDS should be treated like any other chronic illness or condition in the workplace. The ILO HIV and AIDS Recommendation, 2010 (No. 200), concerning HIV and AIDS and the world of work, and the ILO code of practice on HIV/AIDS and the world of work (2001) should be instrumental in helping to prevent the spread of the pandemic, mitigate its impact on workers and their families and provide social protection to help cope with the disease.
4. Workers living or perceived to be living with HIV should not be subject to discrimination in employment and occupation. There should be no disciplinary action nor discrimination against workers on the basis of ongoing medical care or real or perceived HIV status. Real or perceived HIV status should not be a cause for termination of employment. Temporary absence from work because of illness or caregiving duties related to HIV or AIDS should be treated in the same way as absences for other health reasons.
5. Persons with HIV and other blood-borne pathogen-related illness should not be denied the possibility of continuing to carry out their work, with reasonable accommodation if necessary, for as long as they are medically fit to do so. Measures to redeploy such persons

to work reasonably adapted to their abilities, to find other work through training or to facilitate their return to work should be encouraged.

6. It is recommended to have an HIV and AIDS policy and programme in the factory, the successful implementation of which requires cooperation and trust between employers, workers and their representatives. The active participation of both men and women should be promoted in the HIV response, regardless of sexual orientation.
7. When there is a possibility of exposure to HIV at work, workers should receive information, instruction and training on modes of transmission and measures to prevent exposure and infection. Awareness-raising measures should emphasize that HIV is not transmitted by casual physical contact and that the presence of a person living with HIV should not be considered a workplace hazard.
8. There should be no discrimination against workers living or perceived to be living with HIV or AIDS in access to, and receipt of, benefits from statutory social security programmes and occupational health services.

▶ 9. Hazardous substances

1. The widespread use of hazardous substances in textiles, clothing, leather and footwear manufacturing worldwide requires rigorous controls to prevent serious safety and health risks to workers, employers and to the general public and the environment.

9.1. Hazard description

1. Numerous chemicals in their solid, liquid vapour and gas stages are used in each stage of textiles, clothing, leather and footwear manufacturing. Hazardous chemical substances are elements and compounds, and mixtures thereof, whether natural or synthetic, which have been classified as hazardous or for which relevant information exists to indicate that the chemical is hazardous. These include but are not limited to biocides, surfactants, bleaches, acids and bases, dyes and pigments, softeners, PFC-based water repellents, fire retardants, formaldehyde, plasticizers, solvents, adhesives and other auxiliary agents in processes such as curing, washing, bleaching, tanning, dipping, dyeing, screen printing, cementing, assembling and finishing. Many of the chemicals currently used in textiles, clothing, leather and footwear manufacturing are included in national, regional and global lists of chemicals or substances of potential and high concern.
2. Other hazardous substances in textiles, clothing, leather and footwear manufacturing include fibres, notably but not limited to asbestos fibres, and organic and inorganic dusts, including silica dust. Asbestos is a naturally occurring mineral, made up of thin fibres, which are dangerous if they are inhaled and contribute to increased risk of lung cancer and other cancers and diseases. Silica dust is generated during abrasive blasting (sandblasting) and can cause silicosis or lung cancer.
3. Manufactured nanomaterials and substances are increasingly used in the textiles, clothing, leather and footwear industries because of the unique properties they impart to final products in terms of water, soil, stain and wrinkle resistance; flame retardation; and anti-bacteria, anti-odour and ultraviolet light protection. The recent increase in the production of manufactured nanomaterials represents a new exposure risk for workers and highlights the need to comprehensively assess their OSH impacts.
4. The potential health risks of hazardous substances depend on several factors, including but not limited to:
 - (a) the type of applied material and the active ingredient concentration in it;
 - (b) the amount of hazardous substances the worker is exposed to;
 - (c) the length of time and frequency of exposure;
 - (d) the routes of exposure (that is absorption, ingestion, inhalation);
 - (e) the age, sex, genetic factors and general state of health of the worker; and
 - (f) whether the worker is pregnant or breastfeeding.

9.1.1. Routes of exposure

1. Absorption through the skin and eyes is the primary route of exposure for many hazardous substances. At normal exposure levels, skin damage or other symptoms may not be noticed, so absorption occurs without the worker's knowledge. Certain groups are particularly

vulnerable to absorption through the skin. These include women, particularly pregnant women, young persons, children and those with more body fat.

2. Inhalation is an important route of exposure when working with volatile compounds or materials that generate dusts or fibres. Gases and vapours are readily inhaled and absorbed in the respiratory tract. Small particles (10 microns or less), including dusts, fibres and water droplets can also be inhaled.
3. Ingestion is another route of exposure, for instance when particles impact the back of the throat and are swallowed. If food or cigarettes are handled after contact with hazardous substances and prior to washing, this can be a significant contributor to dose.

9.1.2. Principal health effects

1. Hazardous substances produce acute health effects when signs and symptoms occur shortly after exposure. These effects may be either local or systemic. Local effects are those that occur at the point of contact, as is the case with skin and eye irritation. Systemic effects require absorption and distribution from the entry point to other parts of the body.
2. Chronic (long-term) effects may take years or decades to appear. They are usually caused by regular exposure to a harmful substance over a long period of time and the effects are usually permanent. Exposure may affect the sexual function and fertility of both men and women and may also adversely affect the development of their offspring.
3. Longer-term health effects of hazardous substances may also include:
 - (a) organ damage;
 - (b) weakening of the immune system;
 - (c) development of allergies or asthma;
 - (d) reproductive problems and birth defects; and
 - (e) cancers.
4. Such effects tend to be specific to certain chemicals or other hazardous substances. Therefore, the information provided in chemical safety data sheets and other safety and health materials should be consulted for each particular chemical or other hazardous substance.
5. The health effects of mixtures of chemicals or concomitant exposures to one or different hazardous substances can be equally severe but can be harder to evaluate, making it even more important to consult chemical safety data sheets and other safety and health materials on mixtures and concomitant exposures, where they exist.

9.2. Risk assessment

1. The employer should prepare, if not already available, an inventory of hazardous substances involved in textiles, clothing, leather or footwear manufacturing, and require from contractors and subcontractors an inventory of hazardous substances used in their operations. This list should highlight those substances which are mutagens, carcinogens and reproductive toxins.

2. Based on the inventory of hazardous substances, the factory should regularly be inspected and information obtained on:
 - (a) hazardous substances that are present or likely to occur, along with other hazardous ambient factors; and
 - (b) hazardous activities and processes.
3. In the case of identified chemicals, the employer should obtain information on the intrinsic hazards of the substances or products according to the physical state (for example solid, liquid, gas) in which they are provided by suppliers, if available. Where this is not practicable, employers should obtain information provided by other bodies such as the WHO, the United Nations Environment Programme (UNEP), the European Union, the International Agency for Research on Cancer (IARC), and other competent international, regional and national institutions.
4. In this regard, the International Chemical Safety Cards (ICSCs) provide essential safety and health information on chemicals, including acute health hazards and prevention as well as classification and labelling. It is important to note that the classification is based on the acute risk to health that might be encountered accidentally by any person handling the product in accordance with the directions for handling by the manufacturer or in accordance with the rules laid down for storage and transportation by applicable international standards.
5. As the second stage of the risk assessment, the employer should use the information obtained to assess the risk to health resulting from exposure, especially from the effects of chemical mixtures, and should also take account of:
 - (a) routes of entry (that is skin and eyes, inhalation, ingestion);
 - (b) the risk of penetration through damaged skin or seepage through PPE;
 - (c) the risk of ingestion;
 - (d) levels of airborne concentrations of hazardous substances;
 - (e) the rate at which work is performed (for example arduous tasks);
 - (f) the length of exposure (for example higher exposures resulting from prolonged overtime);
 - (g) hazardous substances and oxygen deficiency in confined spaces; and
 - (h) the influence of other ambient factors (for example heat or air pollution) in enhancing the risk of exposure.
6. For new work activities involving the use of chemicals or other hazardous substances, the hazards should be identified and the risks assessed at the earliest stage when the new work activity is being considered. The risks should be analysed for the full life cycle of the chemical concerned, including, for example, transport, storage, mixing and applying, cleaning of equipment, disposal, the fate of empty containers. The hazards and risks should be reviewed at each subsequent stage in the development of a new process.
7. The purpose of the risk assessment is to enable an informed decision to be made by employers about the validity of measures to eliminate or minimize risks from hazardous substances. Employers should show that all aspects of the use of hazardous substances have been considered in the assessment. Where an employer identifies risks which can or should be eliminated or minimized, he or she should eliminate or minimize these risks as

soon as possible and by the best possible means following the hierarchy of controls outlined below.

8. The risk assessment should take account of vulnerable populations, including young workers and women of childbearing age. In particular:
 - (a) Young workers are considered to be at relatively high risk because they have unique windows of susceptibility that leave them more vulnerable to specific toxic exposures, especially those that affect neurodevelopment and reproductive health. They often have minimal safety and health training and may engage in risk-taking behaviours not normally seen among adult workers because of differences in their perceptions of risk and vulnerability.
 - (b) Women during pregnancy can expose the foetus to hazardous substances when handling chemicals or when working in areas where hazardous substances have been used. The foetus is considered particularly vulnerable to exposures during certain stages of development and the window of vulnerability may vary according to the particular hazardous substance. Care should be taken by women during pregnancy or when breastfeeding to avoid or greatly minimize exposures.
9. At the third stage of the risk assessment, the need for a programme for the measurement of airborne contaminants (monitoring) should be determined. Such a programme is required to determine the extent of exposure of workers and check the effectiveness of engineering control measures.

9.3. Control strategies

9.3.1. General provisions

1. As a basis for eliminating or controlling exposure to hazardous substances, the provisions of the ILO code of practice on ambient factors in the workplace (2001) should be consulted. Where workers are exposed to specific hazardous substances, the provisions of the ILO Chemicals Convention (No. 170) and Recommendation (No. 177), 1990, the code of practice on safety in the use of chemicals at work (1993), the resolution concerning asbestos (2006), the Asbestos Convention (No. 162) and Recommendation (No. 172), 1986, the code of practice on safety in the use of asbestos (1984), the WHO/ILO publication *Outline for the Development of National Programmes for Elimination of Asbestos-Related Diseases*, the Radiation Protection Convention, 1960 (No. 115), and the Occupational Cancer Convention (No. 139) and Recommendation (No. 147), 1974, should apply.
2. The competent authority should ensure that criteria are established governing the measures to be adopted for safety and health, in particular in respect of:
 - (a) the handling, storage and transport of hazardous substances; and
 - (b) the disposal and treatment of hazardous chemicals and hazardous waste products, consistent with national laws and regulations, or other nationally and internationally recognized instruments.
3. The *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)* (eighth revised edition, United Nations, 2019) provides guidance on the preparation of chemical safety data sheets and the provision of information to the workplace audience, including workers, employers, safety and health professionals, emergency personnel, and relevant government agencies as well as members of the community.

4. In accordance with the requirements of Chapter 5 of the ILO code of practice on safety in the use of chemicals at work (1993), safety data sheets for hazardous chemicals should be provided by the supplier. The production of safety data sheets in electronic format should be encouraged. Safety data sheets should, as a minimum, meet the requirements of the competent authority and should contain the following core information:
 - (a) identification of manufacturer, product and ingredients;
 - (b) physical and chemical properties, and information on the health effects, physical hazards, environmental impact and relevant exposure limits; and
 - (c) recommendations concerning safe work practices; transport, storage and handling; waste disposal; PPE; first aid, firefighting and chemical spills.
5. Labels should, as a minimum, meet the requirements of the competent authority, and should contain the following core information:
 - (a) signal word or symbol; identification information, including the manufacturer, product and ingredients;
 - (b) risks and safety phrases, first-aid and disposal procedures; and
 - (c) reference to the chemical safety data sheets, and date of issue.
6. Labels should use large, easily readable printing, and include pictograms to assist readers who are unable to read the language in use on the label. Chemical labels should be durable and non-detachable from chemical containers so that the information remains available to managers and workers as the product passes along the supply chain and throughout the product's lifetime.
7. The ICSCs (see section 9.2, paragraph 4 above), which are available on the internet, should serve as the international model and reference.
8. Employers should ensure that the safety data sheet is displayed in print or digitally on site and is easily available to workers in appropriate languages understood by all workers. Workers should be informed of the hazards that they may be exposed to, how to protect themselves from that hazard and what to do if they are exposed.
9. After reviewing the hazardous substances being used at work, obtaining information about their hazards, and making an assessment of the potential risks involved, employers should take steps to limit exposure of workers. The measures taken should eliminate or minimize the risks, preferably by substitution using non-hazardous or less hazardous products, or by the choice of technology. Where this cannot be achieved, the risks should be eliminated or minimized using good engineering controls. Administrative measures such as safe working systems and practices, the provision of information and training, and PPE will further minimize risks and may have to be relied upon for some activities entailing the use of chemicals and other hazardous substances.
10. A programme should be prepared to specify the action necessary to eliminate or minimize the risks and indicate the time needed for its completion. The programme should deploy the full hierarchy of controls to minimize occupational exposures, as follows:
 - (a) elimination, for example prohibiting silica and abrasive blasting (sandblasting);
 - (b) substitution, for example substituting a more hazardous chemical with a less hazardous one;

- (c) engineering control measures, for example a well-designed system for storage or transport;
- (d) administrative controls such as putting in place procedures to ensure that pregnant or breastfeeding workers are not knowingly exposed to chemicals and other hazardous substances; and
- (e) as a last resort, provision of PPE that is suitable for the worker and appropriate for the task and affords adequate protection. As mentioned in Chapter 15, PPE is not a substitute for control strategies to eliminate or minimize the potential hazard to the worker.

9.3.2. Elimination or substitution

1. The employer should eliminate risks from hazardous substances by ceasing to use them, where possible.
2. Care should be taken to consider all the known risks of the proposed substitutes, and action should be taken on precautionary measures before substitution, using an alternative process.
3. If the hazardous substance cannot be replaced, the employer should:
 - (a) replace them by less hazardous substances or by the same substances in a less hazardous form; or
 - (b) use them less frequently.
4. Where chemicals and other hazardous substances are used, the control measures outlined in the paragraphs below should be followed.

9.3.3. Engineering and administrative controls

1. Engineering controls may be defined as the control or elimination of risk by means of devices, structures or switches. The employer should provide suitable engineering control measures to provide protection for workers, which could include any of the following:
 - (a) totally enclosed process and handling systems;
 - (b) segregation of the hazardous process from the operators or from other processes;
 - (c) plant, processes or work systems which minimize generation of, or suppress or contain, hazardous dust, fumes, etc., and which limit the area of contamination in the event of spills and leaks; and
 - (d) partial enclosure, with local exhaust ventilation.
2. A competent person should thoroughly examine and test engineering control measures at suitable or specified intervals to ensure that they are continuing to perform as originally intended. The intervals and content of the thorough examination should be in accordance with national laws and regulations, or criteria specified in applicable international standards, taking into account the extent of the risk in the event of failure of the control measure.
3. Any defects disclosed as a result of the examination or test should be remedied by the employer as soon as possible or within such time as the examiner directs. A suitable record of each thorough examination should be kept in accordance with national law and practice.

4. Administrative control measures are work systems and practices to provide protection for workers and could be any combination of the following:
 - (a) reduction of the numbers of workers exposed and exclusion of non-essential access;
 - (b) reduction in the period of exposure of workers;
 - (c) regular cleaning of contaminated equipment;
 - (d) proper maintenance of engineering control measures;
 - (e) immediate clean-up of any accidental contamination due to spills or leaks; and
 - (f) provision of means for safe storage and disposal of chemicals and other hazardous substances, as well as the management and disposal of empty containers.
5. The employer should put in place procedures to ensure that pregnant or breastfeeding workers are not knowingly exposed to hazardous substances.

9.3.4. Information, instruction and training

1. The employer should inform workers of the known hazards associated with chemicals and other hazardous substances used at their workplace.
2. The employer should obtain from their chemical supplier copies of chemical safety data sheets for all chemical products used in their textiles, clothing, leather or footwear factories.
 - (a) The employer should maintain a master file of all chemical safety data sheets in a location that is readily accessible.
 - (b) The employer should prepare emergency response forms to be located at the factory. These should specify the appropriate response, including immediate first aid, in the event of such contingencies as a chemical being splashed on skin, splashed in the eyes, inhaled or ingested. The emergency response form should include relevant phone numbers.
3. The employer should instruct workers about how to obtain and use the information provided on labels of hazardous substances and chemical safety data sheets. Hazardous substances should never be poured into unmarked containers or in other ways separated from the information provided on safety labels and chemical safety data sheets.
4. The employer should train workers in the correct and effective use of the control measures, in particular the engineering control measures and measures for personal protection provided, and should be made aware of their significance.
5. The employer should use chemical safety data sheets, along with label-specific information, as a basis for the preparation of instructions to workers, which should be in writing, if appropriate, and presented in forms and languages easily understood by all workers.
6. The employer should train workers on a continuing basis in preventive working practices regarding the safe use of hazardous substances and in how to deal with emergencies.
7. The extent of the training and instruction received and required should be reviewed and updated simultaneously with the review of the working systems and practice. The review should include the examination of:
 - (a) whether workers understand the most effective use of the engineering control measures provided;

- (b) whether workers understand when protective equipment is required, and its limitations; and
- (c) whether workers are familiar with preventive working practices regarding the safe use of chemicals and other hazardous substances and in how to deal with emergencies.

9.3.5. Personal protection

9.3.5.1. Personal protective equipment

1. The use of PPE should not be regarded as an alternative to engineering controls, safe handling practices or other suitable control measures. PPE should be considered the least preferred option, but should be provided and maintained where collective control measures cannot ensure protection. Effective action should continue to be taken by the employer to ensure that control measures are developed and applied in order to eliminate or minimize the risk to a level at which personal protection may not be required. For information about the correct selection, instruction, use, training, supervision, maintenance, storage and disposal of PPE, see Chapter 15.
2. The types of PPE that protect workers against hazardous substances include respiratory protective equipment, chemical protective clothing (including gloves and footwear) and equipment to protect the eyes and face.

9.3.5.2. Chemical protective clothing

1. The employer should seek competent professional advice with regard to the selection of chemical protective clothing.
2. Chemical protective clothing should properly fit the individual who wears it. Workers and their representatives should be consulted with regard to comfort and fit of PPE.
3. The selection of protective clothing should take into account:
 - (a) the ability of the material from which it is made to resist penetration by the chemicals and other hazardous substances concerned;
 - (b) the adequacy of the design and the fit of the clothing, and whether it is suitable for the intended use;
 - (c) the environment in which it will be worn; and
 - (d) any potential for heat or allergic stress during the period of use.
4. Chemical protective clothing should not be used as an alternative to engineering or administrative controls.

9.3.5.3. Respiratory protective equipment

1. Respiratory protective equipment must be selected in compliance with national laws and regulations or international standards, and consistent with requirements on the label of the hazardous substance.
2. Respiratory protective equipment should also be selected taking into account the work involved and should be matched to the wearer.
3. Respiratory protective equipment should be fit-tested before initial use and periodically for each worker.

4. Respiratory protective equipment should be used only as a supplementary, temporary, emergency or exceptional measure and not as an alternative to engineering and administrative controls.

9.3.6. Workplace and worker hygiene

1. Adequate washing facilities should be provided to enable workers to meet a standard of personal hygiene consistent with the adequate control of exposure and the need to avoid the spread of chemicals and other substances hazardous to health.
2. The washing facilities should be conveniently accessible but situated so that they do not themselves become contaminated by the workplace.
3. The type of washing facilities should be related to the nature and degree of exposure and the toxicity of the hazardous substances being used.
4. Face- and eye-washing facilities and safety showers with clean running water should be available for workers contaminated by chemical splashes or spills. They should be easy to operate in emergencies, for instance through the use of external levers, pull-down handles or foot pedals.
5. Separate changing facilities for both women and men should be so situated and designed as to prevent the spread of contamination from protective clothing to personal clothing (see Chapter 17, section 17.4).
6. The employer should provide safe opportunities for eating and drinking for employees who are working in contaminated facilities (see Chapter 17, section 17.5).
7. After handling hazardous substances, workers should ensure that they wash their hands and face before eating and drinking. They should also not eat, drink, or smoke in a work area that is contaminated by hazardous substances.

9.3.7. Emergency procedures and first aid

1. Arrangements must be made to deal at all times, and in accordance with any requirements laid down by the competent authority or as advised by the assessment of risks, with emergencies and accidents which might arise from the use of chemicals and other hazardous substances at work.
2. These arrangements, including the procedures to be followed, should be kept up to date in accordance with national law and practice in the light of new information such as that provided on product labels, chemical safety data sheets, experience with the chemicals and any changes in the work activity.
3. Employers should train workers in the emergency procedures.
4. Where an incident may affect people or property outside the factory, appropriate procedures should be developed in consultation with the authorities or services that may have relevant responsibilities, such as external emergency services and local authorities.
5. Appropriate means and trained personnel for rendering first aid should be readily available at all times during the use of acutely toxic chemicals and other hazardous substances.
6. The first-aid equipment and facilities should be appropriate for dealing with the hazards to be encountered in the use of chemicals and other hazardous substances. Suitable facilities should be available for workers to use themselves, such as emergency showers or eye-wash stations with external levers, pull-down handles or foot pedals.

7. First-aid personnel should be trained on emergency procedures related to exposure to hazardous chemicals and other substances.

9.4. Transport, storage and disposal of hazardous substances

1. Transportation, storage and disposal of hazardous substances should comply with specific national laws and regulations.
2. Chemicals and other hazardous substances should always be transported in their original containers. Transfer of chemicals or other hazardous substances into unlabelled containers for distribution or transport should not be permitted as this creates a serious potential health hazard for workers.
3. The supply of a chemical or another hazardous substance for use on production floors should be limited to the shortest amount of time needed to complete the specific task and no more than one day. Otherwise, all hazardous substances should be stored in designated locations that are segregated from production areas, office areas, dormitories, kitchens, etc.
4. Hazardous substances should be stored in secure, sheltered, well-ventilated spaces to which only authorized access is permitted. Chemical storage areas should not be accessible to pregnant workers and other particularly vulnerable workers.
5. Storage facilities should be purpose-built, fire-resistant and designed to prevent leakage in the event of spills, and the storage area should be embanked. They should be kept in a general state of cleanliness.
6. Containers should be inspected upon receipt to ensure that the contents, concentrations and quality comply with purchasing specifications, and they should preferably be placed on skids or a platform. There should be legible and durable labels on all containers, which should be kept closed or capped when not in use.
7. There should be regular inspection of storage areas for leakage, container conditions and expired products. An updated list of the hazardous materials in inventory should be available, along with safety data sheets. Absorbent materials and cleaners should be available for use in the event of minor spills or releases.
8. All electrical installations in storage areas should be explosion-proof or protected. Flammable and combustible materials should be segregated from oxidizing agents, reactive materials, and other materials that can cause ignition. Containers should be protected from direct sunlight and appropriate temperatures should be maintained at all times, such that extreme heat and cold is avoided. Smoking should be prohibited in or near chemical storage areas and warning signs should be posted to that effect.
9. Disposal of chemicals and other hazardous substances should be conducted according to label instructions or according to safety practices applicable to hazardous materials and in compliance with national laws and regulations concerning chemicals and wastewater discharge and treatment.
10. Used containers should be washed, triple or pressure rinsed and punctured or crushed so that they cannot be used again and disposed of properly, preferably through a collection scheme, or if that is not available, by some authorized method of waste disposal. Containers must not be reused for storing other items, particularly food and drink.

9.5. Monitoring for hazards substances in the workplace

9.5.1. General provisions

1. Measurements of airborne contaminants (monitoring) in the workplace are necessary if other techniques do not suffice to provide a valid estimate of the risk of exposure and to assess the existing control measures. They should be undertaken in accordance with Chapter 12 of the ILO code of practice on safety in the use of chemicals at work (1993).

9.5.2. Risk assessment

1. Techniques for this risk assessment should include, as a minimum, the following:
 - (a) estimation of exposure based on the method of work and work pattern;
 - (b) experience of exposure in the workplace or that of other users; and
 - (c) simple qualitative tests, such as the use of smoke tubes or pellets to determine ventilation characteristics, and dust lamps for illuminating dust emissions.

9.5.3. Measuring methods

1. Sampling equipment should be compatible with the analytical methods available and should have been validated over a suitable range of concentrations above and below the exposure limits or other exposure criteria, in accordance with nationally and internationally recognized instruments, where they exist.
2. Static monitoring should be used to determine the distribution of an airborne chemical throughout the general atmosphere of the working area and to identify problems and priorities.
3. Personal monitoring and area monitoring should be used to evaluate the risk of exposure to the individual worker. Air samples for personal monitoring should be collected in the worker's breathing zone by means of personal samplers. Sampling should be carried out while the work activity is being undertaken.
4. Where concentrations vary from one work operation or phase to another, personal sampling should be done in such a manner that the average, and in any case the maximum level of exposure of each individual worker can be determined.
5. Personal sampling should measure exposure, or allow assessment of exposure, throughout the work shift. The exposure should be compared to occupational exposure limit values, which are usually quoted for an eight-hour period or, for short-term limits, 15 minutes. The measurement may be continuous over the whole shift or intermittent, so long as this allows a valid calculation of the average exposure and, where necessary, is supplemented by short-term sampling during periods of peak emission.
6. Exposure profiles of particular jobs or occupational categories should be constructed from the air sampling data for different operations and from the workers' exposure time in these jobs.

9.5.4. Monitoring strategy

1. A systematic measurement programme should evaluate whether the exposure of workers to certain hazardous chemicals and other hazardous substances prescribed by the competent authority or determined by the initial assessment is being kept under control.

2. The aims of this programme should be to:
 - (a) ensure that the health of the workers is efficiently protected;
 - (b) ensure that the preventive actions which have been taken are still effective;
 - (c) ensure that the levels, as measured previously, remain unchanged or fall;
 - (d) ensure that any changes made in recycling (or life cycle) processes or work practices will not lead to excessive exposure to hazardous substances; and
 - (e) promote the implementation of more efficient preventive measures.
3. The monitoring of airborne contaminants should be performed using adequate equipment and only by competent persons. The employer should use qualified laboratories to analyse and report on the samples.
4. The employer should arrange for regular inspection, maintenance and proper calibration of monitoring equipment.

9.5.5. Record-keeping

1. The employer should keep dated records of measurements of airborne contaminants:
 - (a) by technique and type (for example static, personal), including data on the factory location, work area, work processes, nature of hazardous substances, names and lists of exposed workers, their gender, and control measures in place; and
 - (b) for a period of time, as determined by the competent authority.
2. Workers and their representatives, and the competent authority, should have access to these records.
3. In addition to the numerical results of measurements, the monitoring data should include, for example:
 - (a) the marking of the hazardous chemical;
 - (b) the location, nature, dimensions and other distinctive features of the workplace, and the names, gender and job titles of the workers involved;
 - (c) the source or sources of airborne emissions, their location and the type of work and operations being performed during sampling;
 - (d) relevant information on the work process, engineering and personal protection means, and weather conditions with respect to the emissions;
 - (e) the sampling instrument used, its accessories and the method of analysis;
 - (f) the date and exact time of sampling;
 - (g) the duration of the workers' exposure, the use or non-use of respiratory protection, and other comments relating to the exposure evaluation; and
 - (h) the names of the persons responsible for the sampling and for the analytical determinations.

9.5.6. Interpretation and application of monitoring data

1. The risk of exposure should be assessed on the basis of the numerical results obtained, supported and interpreted in the light of other information, such as length of exposure,

work procedures and patterns, measurements of air circulation and other particular circumstances of work during measurement.

2. In the event that monitoring discloses levels that are in excess of the exposure limits, employers should inform the workers and their representatives, in a manner which is easily understood by the workers, of the risk and of the action to be taken to reduce this as part of the prevention and control action programme.

9.6. Health surveillance

1. Exposure to the following types of hazardous substances may require appropriate health surveillance:
 - (a) substances (dusts, fibres, solids, liquids, fumes, gases) that have a recognized systemic toxicity (that is, an insidious poisonous effect);
 - (b) substances known to cause chronic effects;
 - (c) substances known to be sensitizers, irritants or allergens;
 - (d) substances that are known or suspected carcinogens, teratogens, mutagens or harmful to reproductive health; and
 - (e) other substances likely to have adverse health effects under particular work conditions or in case of fluctuations in ambient conditions.
2. In the case of exposure of workers to specific hazards, health surveillance should include biological monitoring for the early detection of the effects on health when:
 - (a) a valid and generally accepted reference method exists;
 - (b) it may be used to identify workers who need detailed medical examination (subject to the individual worker's consent); or
 - (c) it may be necessary to detect exposure levels and early biological effects and responses.
3. The provisions of Appendix I of these guidelines concerning workers' health surveillance, the use of the results of health surveillance and record keeping, should apply.

9.7. Specific hazards

9.7.1. Silica and abrasive blasting

9.7.1.1. Hazard description

1. Abrasive blasting (sandblasting) is a hazardous activity that guarantees a high exposure to silica dust unless done in an isolated space, such as a glove box, or with well-fitted respiratory protection of the correct type, preferably with a positive pressure mask. Particles smaller than about 5 micrometres are easily respirable, deep into the lung, where the crystalline particles tend to lodge and stay once inhaled. When workers inhale the crystalline silica, the lung tissue reacts by developing fibrotic nodules and scarring around the trapped particles. If these nodules grow too large, breathing becomes difficult and death may result. Silicosis victims are also at high risk of developing active tuberculosis or lung cancer.

2. The use of crystalline silica for blast-cleaning operations was prohibited in the United Kingdom in 1950 and in other European countries in 1966, and it has been prohibited in an increasing number of countries and by an increasing number of textiles, clothing, leather and footwear brands and buyers in recent years.

9.7.1.2. Risk assessment

1. The employer should conduct a risk assessment to identify whether and how abrasive blasting is used by workers, contractors and subcontractors as a finishing technique. It should verify that none of the contractors, subcontractors or suppliers of the factory are using silica for abrasive blasting. The assessment should include:
 - (a) the type of abrasive-blasting materials used;
 - (b) the type of engineering controls in place (such as blasting enclosures, ventilation, glove boxes); and
 - (c) the availability and use of respiratory protection for workers.

9.7.1.3. Control measures

1. No sand or other substance containing free silica should be used for abrasive blasting in textiles, clothing, leather and footwear manufacturing operations.
2. The employer should eliminate the risk of abrasive sandblasting by using automated machines or alternative technologies, or should reduce the risk by using other blasting media that have been proven by research to be less hazardous.
3. Abrasive blasting should be carried out in a blasting enclosure, such as a chamber or cabinet, which should be kept completely closed while blasting is in progress. When this type of work is being conducted, no other workers should enter the exclusion zone, and there should be signs and warning messages in place to avoid unauthorized entry.
4. Blasting enclosures should be equipped with exhaust ventilation adequate to remove and safely discharge the dust produced during blasting. Exhaust ventilation should be in operation whenever the blasting enclosure is in use, and whenever any worker is in the enclosure for the purpose of maintenance, repair and similar operations. Dust extraction equipment should not allow dust to escape into places where workers are engaged or pass through.
5. Every blasting enclosure should be inspected and tested by a competent person at suitable intervals, not exceeding one week. The competent person should immediately inform the employer of any defect in the blasting enclosure, ventilation system, equipment and device found during the inspection.
6. The employer should provide workers with information, instruction and training at the time of initial assignment and on a regular basis thereafter. The training should cover the health effects of abrasive blasting, control measures, safe work practices and mandatory PPE. It should be presented in forms and languages easily understood by all workers.
7. Workers engaged in abrasive blasting should be provided with suitable PPE, including filter type respirators used in conjunction with appropriate eye, face, hearing and head protection, overalls and gloves. Operators should be protected by hoods and airline respirators, or by air helmets of a positive pressure type.

8. Workers, other than blasters, including machine tenders and those that recover abrasive materials, working in areas where unsafe concentrations of abrasive materials and dusts are present, should be protected by eye and respiratory protective equipment.
9. Adequate shower and washing facilities should be provided to enable workers to meet a standard of personal hygiene consistent with the adequate control of exposure to silica dust.
10. Persons engaged in abrasive blasting should undergo periodical medical examinations, including a chest radiographic examination.

9.7.2. Other dusts

9.7.2.1. Hazard description

1. Textiles, clothing, leather and footwear manufacturing operations generate a variety of dusts. Workers in ginning and tanning factories and those involved in buffing operations are particularly exposed. Cotton and leather dusts may contain a mixture of many substances, fibres, bacteria, fungi, soil, pesticides and other contaminants, which may have accumulated with the cotton, leather and other raw materials during processing, storage or transport. Dusts are also generated during manufacturing processes, when cleaning finished products, equipment, work surfaces and floors with compressed air, and as a result of improper handling of waste during transportation.
2. The size of inhaled particles may be very small – less than 100 microns in size – and therefore may be capable of penetrating to the deepest levels of the lungs and causing a variety of breathing problems. The lungs of workers can be affected by exposure to harmful agents through acute injury to the lung, or the development of long-term injury such as byssinosis, chronic obstructive pulmonary disease, and other breathing disorders as well as asthma and allergies.

9.7.2.2. Risk assessment

1. The competent authority should establish safety standards with regard to occupational exposure to dust, including organic dust. Such standards should be based on sound scientific criteria and accepted international practice.
2. Employers should inform themselves of the relevant standards and carry out a risk assessment to determine the measures required to eliminate the hazard or the control measures required to minimize workers' exposure to all kinds of dust in the working environment. As a part of this assessment, the employer should conduct measurements of dusts in the work environment to determine the concentration of dusts in the factory, the level of exposure in the various work areas and the risks to workers.

9.7.2.3. Control measures

1. The employer should ensure that exposure levels in textiles, clothing, leather and footwear factories are kept at or below the standard set by the competent authority to protect the health of workers.
2. Engineering controls can greatly reduce the level of dust and other suspended particulate matter, particularly in enclosed environments and confined spaces. The employer should ensure that all active and passive ventilation technologies, such as local exhaust ventilation systems, function to specification, and that they trap all dusts rather than release them into open air.

3. The employer should also ensure that work systems and procedures are in place to minimize the hazards to workers from dusts.
4. Cotton, leather and other materials containing dusts should be stacked and handled in ways that will reduce the level of dust generated.
5. Waste should immediately be placed in corresponding waste containers and not be allowed to accumulate on the floor. Waste containers should not be overfilled such that materials might spill during storage or transportation of waste.
6. The employer should conduct the above-mentioned measurements of dusts in the work environment at appropriate intervals to verify that the risk of exposure has been minimized. The employer should take corrective action, if this is not the case.
7. The employer should ensure adequate cleaning of the workplace. Cleaning of finished products, equipment, work surfaces and floors with compressed air should be prohibited as this redistributes dust into workers' breathing zones. The cleaning of floors should be done by vacuum or other methods designed to minimize the generation of dust, such as damping down surfaces.
8. The employer should ensure that equipment aimed at reducing exposures is adequately cleaned and maintained.
9. In conjunction with engineering controls the employer may need to consider rotating workers in the short term to reduce exposure time.
10. The employers should provide information and training to workers that will enable them to understand the risks to their health caused by exposure to dusts and the need to observe safe working procedures.
11. In circumstances where it is impossible or impracticable to eliminate hazards or minimize risks through the above-mentioned control strategies, PPE should be used. PPE is not a substitute for control strategies to eliminate or minimize the potential risk to the worker from dusts.
12. The employers should provide appropriate PPE for the use of workers. PPE for dust exposure is comprised of respiratory protection and appropriate clothing, such as coveralls, gloves, goggles and safety boots (see Chapter 15).

9.7.3. Asbestos

9.7.3.1. Hazard description

1. Asbestos fibres have for centuries been woven into textiles and used in the production of cloths and garments owing to the resistance of asbestos to heat and corrosive elements. Some of the most common textiles treated in this way included blankets, firefighter suits and ropes, and aprons and mitts for foundry workers. The extremely dusty conditions resulting from milling and spinning raw asbestos have contributed to high levels of lung disease in textile and clothing workers and have resulted in countless deaths.
2. Because all forms of asbestos are classified as human carcinogens by the IARC and since workers continue to face serious risks from asbestos exposure in the manufacturing, use, repair and disposal of asbestos products, no new asbestos product should be used in textiles, clothing, leather and footwear manufacturing operations.

3. In addition, asbestos is found in a number of asbestos-containing materials that have been used in older buildings. Asbestos fibres may be released as a result of general use over time or during repair, renovation and additions.

9.7.3.2. Risk assessment

1. The employer should perform a risk assessment of his or her own operations and of all contractors, subcontractors and suppliers to verify that no asbestos products are being used.
2. In buildings or structures where asbestos-containing materials are suspected or have been identified, the employer should solicit the services of a competent person to:
 - (a) identify the locations, quantity, type and condition of the asbestos-containing materials;
 - (b) evaluate the risks associated with these; and
 - (c) identify control measures to reduce the risk.
3. The employer should ensure that buildings and structures where asbestos-containing materials have been identified are inspected on a regular basis to verify their condition.

9.7.3.3. Control measures

1. The employer should prepare and implement a written policy stating that the use of asbestos products is prohibited.
2. The employer should communicate the presence of asbestos-containing materials and associated health hazards to all workers, contractors and subcontractors, including through the use of signs and notices.
3. All workers, contractors and subcontractors who work in the presence of asbestos-containing materials should be provided with training on:
 - (a) how to recognize these materials; associated health hazards;
 - (b) which activities could result in the release of asbestos fibres; and
 - (c) who to notify in the event that asbestos-containing materials are disturbed.
4. Workers in direct contact with asbestos-containing materials, such as maintenance workers or cleaners, should also be trained on:
 - (a) how to avoid damage to asbestos-containing materials;
 - (b) when and how to use PPE correctly;
 - (c) procedures for the maintenance of asbestos-containing materials;
 - (d) how to recognize signs of damage and deterioration; and
 - (e) how to respond to a release of fibres.
5. For any situation or operation involving a risk of occupational exposure to airborne asbestos dust and fibres in the repair or removal of buildings or structures containing asbestos materials and in the handling, transportation, storage and disposal of asbestos or asbestos-containing materials, the provisions of the ILO code of practice on safety in the use of asbestos (1984), the WHO-ILO joint publication *Outline for the Development of National Programmes for Elimination of Asbestos-Related Diseases* and the ILO resolution concerning asbestos (2006), should apply.

6. When asbestos-containing materials are removed, the employer should ensure that an asbestos management plan is developed and implemented for the factory. The plan should set out the necessary engineering, administrative and safe work procedures to minimize the risk of exposure to asbestos fibres. Before asbestos removal, the affected area should be contained and enclosed to ensure workers in adjacent areas stay safe. Air sampling should be carried out to verify the absence of asbestos fibres before the containment or enclosure is taken down and the area released.
7. The repair or removal of buildings and structures with asbestos-containing materials should be carried out by competent persons only, with provisions for engineering controls, housekeeping requirements, containment and clean-up equipment, the proper use of PPE as well as for their health surveillance.
8. Asbestos-containing materials should be disposed of in accordance with national laws and regulations and the recommendations of the competent authority.

► 10. Ergonomic hazards

10.1. Hazard description

1. Despite the increased use of automation and other new technologies, textiles, clothing, leather and footwear manufacturing is mostly characterized by labour-intensive practices such as cutting, stamping, assembling, sewing, stitching, trimming, finishing, ironing, folding and packaging. The work is frequently sedentary and involves reaching, bending, lifting and carrying out repetitive movements in awkward body positions. It may be conducted in crowded, noisy, hot and humid environments with inadequate ventilation and lightning.
2. While the causes of musculoskeletal injuries and cumulative disorders are difficult or sometimes impossible to determine, the most common contributing factors include work postures and movements; repetitiveness and pace of work, excessive overtime work and task rates; task rate systems with low piece rates; the force of movements; vibration; temperature; lack of influence or control over one's job; lack of or poor communication; lack of support from managers or co-workers; poor design of the workstation; and the weight of objects lifted or handled. Job or task dissatisfaction, stress and other psychosocial factors at the workplace may also contribute to work-related musculoskeletal disorders.
3. Musculoskeletal disorders comprise acute and chronic injuries and conditions that involve the muscles, tendons, ligaments, nerves, spinal discs, blood vessels and supporting structures of the body and compromise their function. These disorders include carpal tunnel syndrome; radial styloid tenosynovitis; chronic tenosynovitis of the hand and wrist; forearm tendinitis; olecranon bursitis of the elbow region; epicondylitis; bicipital tendinitis; lower back pain; neck and shoulder pain; prepatellar bursitis; meniscus lesions; and osteoarthritis of the knees.

10.2. Risk assessment

1. The employer should carry out assessments of the risk to workers' health due to manual handling of materials, equipment or tools used in textiles, clothing, leather or footwear manufacturing operations. The main factors to be assessed include:
 - (a) characteristics and layout of the workplace and its impact on workers;
 - (b) design of workstations and equipment and workflows;
 - (c) the weight of the materials, products, machines or tools being handled;
 - (d) the frequency (usually in terms of actions per minute) of handling materials, products, machines or tools and applying force;
 - (e) the duration in which materials, products, machines or tools are handled or force is applied;
 - (f) the postures adopted by workers while handling the materials, products, machines or tools and applying the force;
 - (g) the physical characteristics of the workers engaged in the activities (such as height, build, gender, age); and
 - (h) worksite environmental factors, in particular high humidity or cold temperatures.

2. The risk assessment should take account of vulnerable populations, including young workers, pregnant women and those caring for infants:
 - (a) in the labour-intensive textiles, clothing, leather and footwear industries, young workers are particularly vulnerable to musculoskeletal injury due to their soft bone density and developing musculature;
 - (b) pregnant women and those caring for infants face increased exposure to arduous manual handling tasks, tasks requiring non-neutral postures, prolonged periods of sitting or standing and machine vibration; and
 - (c) musculoskeletal injuries and cumulative trauma disorders may cause osteoarthritis, in particular for women.
3. The assessment should be renewed regularly and in any event when any change occurs in relation to the physical work environment, the technology applied to the prescribed tasks, the manner in which tasks are organized (including overtime and piece-rate work) and in response to reported cases of musculoskeletal injury or disorders, or when the competent authority announces new safety and health requirements related to ergonomic hazards.
4. The intervals and content of the assessment should be based on national laws and regulation or criteria specified in national or international ergonomic standards that have been approved or recognized by the competent authority. A suitable record of ergonomic assessments should be kept in accordance with national law and practice.
5. The employer should involve workers and their representatives in the assessment activity and in the drafting of hazard elimination, prevention and control measures. The use of available local expertise has many benefits, including inclusivity and group development of workable solutions to exposure to ergonomic risks.
6. The employer should, based on available guidelines and risk assessments, inform him or herself of relevant elimination, prevention, and control measures and seek guidance on their implementation from the relevant authority, regional or local expertise, or other exemplary textiles, clothing, leather and footwear employers.

10.3. Control measures

1. The competent authority, after consulting the representative organizations of employers and workers concerned, should establish safety and health requirements for repetitive work, working postures, physical load and the handling and transport of materials, particularly for manual handling. Such requirements should be based on the above-mentioned risk assessment, as well as technical standards and medical opinion, taking into account all the relevant conditions under which the work is performed, in accordance with national law and practice.
2. The competent authority should develop guidelines for the implementation of safety standards in textiles, clothing, leather and footwear manufacturing operations that are differentiated by gender, including design and organization of work processes and workstations, safe work postures and movements, the conduct of ergonomic analyses of work tasks, the selection of tools and equipment, and analyses of worksite environmental effects.
3. Employers should, based on the risk assessments, develop a plan for the elimination of identified hazards, and implementation of prevention and control measures, which reduce the risk of musculoskeletal injury and disease. First priority should be given to elimination,

then minimization by substitution using non-hazardous or less hazardous handling methods, work processes, or tools. Where this cannot be achieved, measures such as defined working systems and practices, the provision of information and training, and worker PPE may have to be relied upon.

4. To the extent possible, the task should be adapted to the worker, and jobs and tasks with unacceptable ergonomic problems should be eliminated by redesigning work procedures, workstations, tools and machinery.

10.3.1. Elimination of ergonomic hazards through engineering controls or substitution

1. Engineering control that eliminates the ergonomic hazard at its source is the preferred approach for ergonomic interventions. The competent authority should be prepared to provide regulatory information, ergonomic reference manuals, and other ergonomically useful technical information.
2. The competent authority should ensure that manufacturers of textiles, clothing, leather and footwear manufacturing equipment, tools and workstations design and manufacture transport systems and technical devices that are usable by both men and women and eliminate the need for workers to manually lift, lower, carry, pull or push heavy products or materials.
3. Further, manufacturers should:
 - (a) improve the location and function of hand controls and visual displays on mechanized equipment, machines and stationary worksite devices such as machines used for spinning and twisting, weaving and knitting, splitting, bandknife shearing and cutting, lasting, nailing and moulding, sewing, ironing and pressing, finishing and packaging, etc.;
 - (b) provide culturally and linguistically sensitive information about force requirements, hand and wrist posture, and other technical use detail for equipment and tools;
 - (c) design and produce hand tools that incorporate vibration damping or isolation; and
 - (d) design and produce workstations adjustable for both women and men that support the worker's body in a neutral trunk position.
4. Employers should select tools, machine technology, and workstations that eliminate exposure to ergonomic hazards such as the carrying of heavy (greater than 23 kg) loads, stoop work or trunk bending, excessive fatigue levels resulting from task frequency, duration, and environmental exposure, vibration, excessive amount of hand/arm force, non-neutral postures, or highly repetitive hand work which requires applied hand force and excessive speed of hand/wrist movement. When selecting tools, machine technology and workstations, the employer should take into consideration the ergonomic implications and effects of the climate.
5. In particular, employers should:
 - (a) routinely analyse textiles, clothing, leather and footwear manufacturing jobs and embedded work tasks, as well as resulting demands placed on workers in the industry, and record findings for future use;
 - (b) use this analysis to plan manual handling reduction strategies;

- (c) select powered motor vehicles and equipment that minimize the transmission of vibration to operators (see Chapter 11), permit ergonomically acceptable working positions, and move forward at a pace appropriate to the task;
 - (d) take all necessary measures to install and alter workstations so that exposure to musculoskeletal injury is eliminated, including anti-fatigue mats, chairs for resting and high stools with backrests for tasks that involve prolonged periods of standing;
 - (e) consider partial or full automation of tasks, for instance with regard to cutting and packaging;
 - (f) provide alternative tools and machine technology that eliminates exposure to noise, tool emissions (including heat), vibration, dust, particulate matter, and non-neutral postures that may affect workers' ability to see, hear, and touch properly;
 - (g) maintain machinery, tools, and working surfaces according to manufacturer's recommendations;
 - (h) remove from worksites worn out technology and tools because worn components increase the potential for ergonomic exposure; and
 - (i) consider the use of load-transfer devices that reduce the risk of lower back injury and chronic pain by transferring a portion of upper body weight to the workers' hips and legs.
6. The employer should ensure that the equipment, materials and protective devices they provide are maintained in good condition. This includes but is not limited to ensuring that:
- (a) wheels on carts are not broken, misaligned or flat, have items caught in them or are tangled with debris;
 - (b) bearings are properly maintained;
 - (c) seats have backrests and do not have missing or torn padding;
 - (d) hand tools are properly maintained and do not have broken handles;
 - (e) height-adjustable equipment is functioning and used correctly;
 - (f) chairs are not in disrepair;
 - (g) keyboard trays are functioning correctly and installed at proper height; and
 - (h) overhead or task lighting is functioning correctly.
7. Employers should ensure that all forms of alcoholic beverages and other known allegedly performance-enhancing products are not permitted on the worksite and that suitable rehydration liquids, including water of drinking quality, are freely available.
8. Employers should ensure that at-hire screening or recruitment protocols do not allow for placement of workers at special risk of musculoskeletal injury or disease in jobs or tasks with high exposure to ergonomic hazards.

10.3.2. Control of ergonomic hazards through engineering and administrative minimization of impact

1. The competent authority should offer guidance with regard to the assessment strategies used by employers when evaluating ergonomic control measures.

2. Employers should adopt engineering control measures designed to reduce ergonomic risks for workers, including the following:
 - (a) engineered processes or organized work systems which eliminate or minimize stooped work, non-neutral work postures, lifting, carrying, or placing heavy (greater than 23 kg) loads, or highly repetitive hand work which requires simultaneous non-neutral posturing of the hand or wrist with both applied upper-bound hand force and movement speed of hand or wrist;
 - (b) substitution of textiles, clothing, leather and footwear manufacturing technology or tools for manual tasks;
 - (c) substitution of higher-level technology or tools for other tasks already employing some lower level of technology;
 - (d) selection of tools that are suitable for the workers involved so as to be better adapted to the user;
 - (e) strategic placement of exhaust mechanisms, fans, or heat shields at hot and humid workstations;
 - (f) regular maintenance and repair of equipment; and
 - (g) documentation of jobs, all tasks, and progress toward ergonomic solutions.
3. Administrative control measures designed to control ergonomic hazards for workers could include any combination of the following:
 - (a) programmed use of rest periods for workers;
 - (b) an initial period of activity that allows workers to gradually adapt to the pace and intensity of the job prior to actual placement in work settings;
 - (c) routine use of job and task rotation among workers;
 - (d) written job descriptions that specify responsibilities, tasks, outcomes and consequences;
 - (e) reduction of the number of workers exposed to musculoskeletal injury through segregation of hazardous tasks (such as piece-rate pay structures, production bonuses, etc.); and
 - (f) specific training designed to improve job-related or task-related worker skills and provide protection from musculoskeletal injury and disease.

10.3.3. Minimization of ergonomic hazards through information, instruction and training for workers

1. Employers should ensure that workers who are exposed to workplace risk of musculoskeletal injury or disease receive adequate information, instruction and training in safe work techniques which take into account differences between women and men before being assigned to job tasks. Workers should be:
 - (a) informed about common musculoskeletal disorders and their signs and symptoms;
 - (b) informed about the need to routinely adopt "neutral" body positions;
 - (c) encouraged to properly adjust seating and working positions and safe workstation set-up;

- (d) informed about the risk associated with repetitive lifting and lowering of tools, materials and other objects used in textiles, clothing, leather or footwear manufacturing;
 - (e) informed of the risk associated with pushing or pulling heavy (greater than 23 kg) loads;
 - (f) informed of the hazard associated with repetitive and forceful use of non-neutral posturing of the hand or wrist and speed of hand/wrist movement;
 - (g) instructed in safe work procedures associated with each task;
 - (h) instructed in the correct handling and use of hand tools and equipment with a light, but safe grip;
 - (i) instructed in the proper fitting, use, and maintenance of PPE (see below);
 - (j) encouraged to report any pain, discomfort, numbness or tingling to the employer without fear of discrimination and informed about the consequences of failing to do so; and
 - (k) encouraged not to use tobacco, alcohol or other stimulants, since most act as a vasoconstrictor, reducing blood supply to muscle mass, fingers, wrists and hands.
2. Workers should carefully follow systems of work established by the employer to reduce the risk of injury from manual handling of loads and other musculoskeletal injuries and disorders.
 3. The employer should ensure that workers are supervised so that they perform the work safely and follow correctly the information, instruction and training provided.

10.3.4. Minimization of ergonomic hazards through use of PPE

1. Employers and workers should ensure that every worker who continues to be at risk uses PPE, including, as required, hand protection, gloves, load-transfer devices, wrist or ankle wraps and sweat bands.
2. The employer should ensure that the PPE is targeted at identified hazards and risks and that it fits both men and women workers.
3. The employer should identify and clearly mark worksite areas that require the use of PPE.
4. The employer should check regularly for the proper use of the right kind of PPE and its condition while in routine use (see Chapter 15).

► 11. Physical hazards

11.1. General provisions

1. The employer should provide a safe workplace setting and prevent accidents and injuries by taking necessary measures to eliminate or reduce physical hazards. The employer should put in place systems to detect, avoid and respond to potential risks to the safety of all workers.
2. Physical hazards are factors in the working environment that can harm the body without necessarily touching it. In the textiles, clothing, leather and footwear industries, these include but are not limited to:
 - (a) spills on floors and tripping hazards;
 - (b) insufficient lighting;
 - (c) loud noise;
 - (d) vibration;
 - (e) electric and magnetic fields;
 - (f) radiation;
 - (g) extreme heat and high humidity; and
 - (h) cold.
3. For eliminating or controlling exposure to physical hazards, the provisions of the ILO code of practice on ambient factors in the workplace (2001), should be consulted.

11.2. Slips, trips and falls

11.2.1. Hazard description

1. Spills on floors and tripping hazards are a common type of safety hazard in textiles, clothing, leather and footwear factories. They can lead to injuries such as strains, sprains, bruises to joints and muscles, ligaments, tendons and bones as well as illnesses and death.
2. These safety hazards often occur because of poor initial design, lighting (see section 11.3), housekeeping (see section 7.3) and maintenance. These include missing walkways, materials left in walking aisles, deterioration of steps and stairs, unprotected openings, unmarked glass doors, poorly maintained ladders and walking surfaces rendered slippery by:
 - (a) wet or oily surfaces;
 - (b) occasional spills; and
 - (c) weather conditions.
3. Inadequate lighting, poor visibility, waste, uncovered and trailing electrical cables or air hoses, and uneven walking surfaces can also be significant factors. The risk of accidents is increased when workers carry objects that block their view or are too heavy or awkward.

11.2.2. Risk assessment

1. The employer should assess the risk of slips and trips at all times and especially during maintenance, when the risk can be higher.

11.2.3. Control measures

11.2.3.1. Engineering controls

1. Floors should be of robust construction.
2. Pits and other floor openings should be covered or cordoned off with clear warning signs when not in use. Such areas should always be well lit.
3. All walkways, stairs and rooms should be properly lit with natural or artificial light (see section 11.3).
4. Doors with windows and transparent surfaces should be marked with decals if there is a risk of people walking into them.
5. Additional power sources on fixed circuits should be installed as close as possible to work stations and stationary equipment and machines to reduce the need for trailing cables. Where trailing cables are unavoidable, the employer should ensure that cable tidies and cover strips are used, or that the cables are routed under the ceiling or high in the air.
6. Work areas should be cordoned off when hoses are in use. Self-coiling hoses should be used when it is possible to do so.

11.2.3.2. Safe work systems and procedures

1. Good housekeeping practices can contribute to worker safety by preventing slips, trips and falls (see section 7.3).
2. The employer shall ensure that:
 - (a) walkways that are exposed to wet or slippery substances have suitable drainage and are roughened where necessary;
 - (b) stairs, ladders and stepladders (see section 7.8) are maintained in good condition with handrails installed in staircases; and
 - (c) damaged floor coverings or boards and concrete defects are repaired, as needed.
3. The employer should ensure that workers are instructed and supervised in good housekeeping measures that can prevent slips, trips and falls.
4. Tripping should be prevented through the use of battery-operated power tools to minimize the need for electric cables. Walkways and floors should be always kept clean and free from any object or substance that may cause a person to slip, trip or fall, including:
 - (a) additional tools, material and equipment that are not necessary to perform the job in progress;
 - (b) debris, including solid and liquid wastes, at a minimum at the end of each work shift or job; and
 - (c) all cables and hoses crossing walkways.

11.3. Lighting

11.3.1. Hazard description

1. Poor lighting or a complete lack of lighting in the event of a power failure may prevent workers from seeing possible hazards in the workplace and increase the risk of slips, trips and falls. For example, the risks of slips, trips and falls can increase when entering poorly lit areas from well-lit ones or vice versa.
2. Poor and insufficient lighting can also increase the risk of eye strain, for example when operating machinery.

11.3.2. Risk assessment

1. The employer should assess the risks to workers of poor lighting.
2. In carrying out the risk assessment, the employer should consider that illumination requirements vary considerably and depend both on work tasks and human factors. Work requiring attention to fine detail, such as reading a product label or machine operating instructions, will require a higher level of lighting.

11.3.3. Control measures

1. The task area should be sufficiently lit to ensure that work can be effectively performed and poses no risk to workers' eyesight.
2. Electric lighting should comply with national building codes and regulations, particularly in respect of minimum lighting levels.
3. When work is performed at night and in places where natural lighting is not adequate to ensure safe working conditions, the employer should provide:
 - (a) adequate and suitable artificial lighting, including portable lighting where appropriate, at every workplace and any other place where a worker may have to pass; and
 - (b) emergency lighting in case of power failure.
4. Artificial lighting should not produce glare or disturbing shadows.
5. The employer should test the emergency lighting system regularly and keep written records of these tests.

11.4. Noise

11.4.1. Hazard description

1. Noise is a serious occupational hazard for those who work in the textiles, clothing, leather and footwear industries. Damage to the eardrum and hearing loss may result from a single intense exposure or cumulative exposure to noise. Overcrowded workspaces, poorly designed buildings in crowded urban areas and machinery and tools (particularly when poorly maintained) are among the major sources of noise in factories.
2. Hearing damage usually occurs over longer periods of time because of prolonged exposure to high noise levels. Hearing loss may be only temporary after short periods of exposure to noise, but if workers continue to be exposed to high noise levels they will suffer permanent

damage to their hearing. Permanent damage can also be caused immediately by sudden, extremely loud noises.

3. High noise levels can also be a safety hazard at work, interfering with communication and making warnings harder to hear, and they can also increase worker fatigue, cause irritability and sleep disorders, reducing performance.

11.4.2. Risk assessment

1. The competent authority should set standards for the maximum noise dose considered acceptable to prevent hearing impairment in the working environment on a daily basis and for the maximum peak noise level.
2. The employer should assess the risks to workers of noise-induced hearing loss, and in particular:
 - (a) identify the sources of noise and the tasks that give rise to exposure to noise;
 - (b) risk of hearing impairment;
 - (c) degree of interference to communication essential for safety purposes; and
 - (d) risk of fatigue, with due consideration of the mental and physical workload and other non-auditory hazards or effects.
3. In carrying out the risk assessments, the employer should, in consultation with workers and their representatives:
 - (a) seek the advice of the competent authority and/or the occupational health service about exposure limit standards, including levels and length of exposure, and other nationally and internationally recognized instruments to be applied;
 - (b) seek the advice of the suppliers of processes and equipment used in textiles, clothing, leather and footwear manufacturing operations about expected noise emission; and
 - (c) if this advice is incomplete or in doubt, arrange for measurements by competent professionals in accordance with current nationally and internationally recognized instruments.
4. Noise measurements should be used to:
 - (a) quantify the level and duration of the exposure of workers and compare it to exposure limits, as established by the competent authority or internationally recognized instruments;
 - (b) identify and characterize the sources of noise and exposed workers;
 - (c) create a noise map for the determination of risk areas;
 - (d) assess the need both for engineering noise prevention and control and for other appropriate measures and their effective implementation; and
 - (e) evaluate the effectiveness of existing noise prevention and control measures.

11.4.3. Control measures

1. Based on the assessment of the exposure to noise in the working environment, the employer should establish a noise prevention policy and programme with the aim of eliminating the hazard, or reducing the risk to the lowest practicable level by all appropriate means.

2. The employer should review the effectiveness of any engineering and administrative controls to identify and correct any deficiencies. If a worker's noise exposure exceeds the permissible level, the employer should use all feasible engineering and administrative controls to reduce the worker's noise exposure. If these controls fail to reduce the exposure to permissible levels, the employer should enrol the worker in a hearing conservation programme that should include:
 - (a) audiometric testing;
 - (b) provision of effective hearing protection and training in its use;
 - (c) additional noise measurements to determine continued exposure;
 - (d) continued examination of methods and controls to lower noise levels and duration causing the overexposure; and
 - (e) information and training on hearing loss.
3. In the case of new processes and equipment, as far as practicable:
 - (a) low noise output of the process and equipment should be specified as a condition of purchase, alongside production-related specifications; and
 - (b) the workplace layout should be arranged to minimize the noise exposure of workers.
4. In the case of existing processes and equipment, it should first be considered whether the noisy process is necessary at all, or whether it could be carried out in another way without generating noise. If the elimination of the noisy process as a whole is not practicable, improving maintenance or replacing its noisy parts with quieter alternatives should be considered.
5. If the elimination of noisy processes and equipment as a whole is impracticable, individual sources should be separated out and their relative contribution to the overall sound pressure level identified. Once the causes or sources of noise are identified, the first step in the noise control process should be to attempt to control it at source. Such measures may also be effective in reducing vibration (see section 11.5).
6. If prevention and control at source do not reduce exposure sufficiently, enclosure of the noise source should be considered as the next step. In designing enclosures, several factors should be taken into consideration if the enclosure is to prove satisfactory from both an acoustical and a production perspective, including workers' access and ventilation. Enclosures should be designed and manufactured in accordance with the requirements and needs indicated by the user, consistent with internationally recognized instruments.
7. If enclosure of the noise source is impracticable, consideration should be given to alternative sound transmission path treatment, including rubber padding to reduce machine vibration and the use of sound-absorbing materials, sound curtains or another type of barrier to block or shield the worker from the noise hazard. Barriers should be designed and manufactured in accordance with the requirements and needs indicated by the user, consistent with nationally and internationally recognized instruments.
8. If reducing the noise at source or intercepting it does not reduce workers' exposure sufficiently, then the final options for reducing exposure should be to:
 - (a) install an acoustical booth or shelter for those job activities where the movement of the worker is confined to a relatively small area;

- (b) minimize, by appropriate organizational measures such as job rotation, the time workers spend in the noisy environment;
 - (c) designate specific areas with high noise levels and install appropriate warning signs indicating that hearing protection is mandatory; and
 - (d) provide PPE, including hearing protection equipment, as well as instruction and training to ensure it is used correctly.
9. Workers who may be, or have been, exposed to noise levels exceeding occupational standards should receive initial and further regular audiometric testing (for example within three months of commencing work, and at least annually). Workers who may be exposed to significant levels of noise should be trained in:
- (a) the effective use of hearing protection devices;
 - (b) identifying and reporting on new or unusual sources of noise that they become aware of; and
 - (c) the role of audiometric examination.
10. Workers in noisy environments should be informed of the:
- (a) results of their audiometric tests;
 - (b) factors leading to noise-induced hearing loss and the consequences, in terms of non-auditory effects and social consequences;
 - (c) noise level;
 - (d) the precautions necessary, especially those requiring the intervention of workers or the use of hearing protection devices;
 - (e) effects that a noisy environment may have on their general safety; and
 - (f) symptoms of adverse effects of exposure to high levels of noise.
11. Workers should have access to occupational health services (see Chapter 5, section 5.1), where available, so that they can discuss possible symptoms of noise exposure with qualified practitioners.

11.5. Vibration

11.5.1. Hazard description

1. Exposure of workers to hazardous vibration mainly comprises:
 - (a) whole-body vibration, when the body is supported on a surface that is vibrating, such as in vehicles or when working near vibrating industrial machinery; or
 - (b) hand–arm vibration, which enters the body through the hands and is caused by various processes in which vibrating tools or work pieces are grasped or pushed by the hands or fingers.
2. Short duration exposure to whole-body vibration or to hand–arm vibration may result in temporary disability, but prolonged or repeated exposure leads to permanent damage. The main concerns are therefore the magnitude of vibration transmitted and the duration of exposure. Hand–arm vibration syndrome and carpal tunnel syndrome are painful and disabling conditions that affect the nerves, blood vessels, muscles and joints of the hands

and arms. Exposure to whole-body vibration is unlikely on its own to cause injuries, but it can aggravate existing back injuries which may cause pain.

3. Common sources of hand–arm and whole-body vibration in textiles, clothing, leather and footwear manufacturing operations include but are not limited to staking machines in tanneries; reciprocating roller machines in the leather industry; roughing machines, shoe and leather presses, nailing machines, drills and grinders in leather and footwear production; and weaving, spinning, sewing, twisting and cutting machinery in textiles and clothing manufacturing.
4. As with noise (see section 11.4), vibration is best reduced or eliminated at source through good design of equipment. Engineering controls to reduce vibration subsequently may be possible but these are usually less effective. PPE, such as anti-vibration gloves, is not a substitute for engineering controls and should only be considered as a last resort. However, exposure levels will be reduced by spending less time working with vibrating equipment.

11.5.2. Risk assessment

1. Where workers are frequently exposed to hand–arm or whole-body vibration, the employer should assess the hazard and risk to safety and health resulting from the conditions, and:
 - (a) identify the sources of vibration and the tasks that give rise to exposure;
 - (b) seek the advice of the supplier of vehicles, machinery and equipment about their vibration emissions; or
 - (c) if this advice is incomplete or in doubt, arrange for measurements by a competent person, in accordance with nationally and internationally recognized instruments and the latest currently available standards knowledge.
2. Vibration measurements should be used to:
 - (a) quantify the level and duration of exposure of workers, and compare it with exposure limits as established by the competent authority or other nationally and internationally recognized instruments to be applied;
 - (b) identify and characterize the sources of vibration and the exposed workers;
 - (c) assess the need both for engineering vibration control and for other appropriate measures, and for their effective implementation; and
 - (d) evaluate the effectiveness of particular vibration prevention and control measures.
3. The assessment should give due consideration to the composition of the workforce, including pregnant workers, women and young workers, and should identify the ways in which vibrating tools are used and determine, in particular, whether:
 - (a) the high-risk use of tools can be eliminated;
 - (b) workers have had sufficient training in the use of the tools; and
 - (c) the use of tools can be improved by supports.

11.5.3. Control measures

1. The employer should comply with exposure limit standards and other nationally and internationally recognized instruments, as required by the competent authority.

2. The employer should ensure that workers who are exposed to significant vibration hazards are:
 - (a) informed about the hazards and risks of prolonged use of vibrating tools;
 - (b) informed about the measures within the workers' control which will minimize risk, particularly the proper adjustment of seating and working positions;
 - (c) instructed in the correct handling and use of hand tools with a light but safe grip; and
 - (d) encouraged to report finger blanching, numbness or tingling, without unwarranted discrimination, for which there should be recourse in national law and practice.
3. Where exposure might lead to injury if workers continue to work for a longer period, and reduction of the vibration is impracticable, the work should be rearranged to give rest periods or job rotation sufficient to reduce overall exposure to levels below those provided in nationally and internationally recognized instruments, with reasonable accommodation for pregnant workers and other workers who are particularly vulnerable.
4. Manufacturers should:
 - (a) provide vibration values for their tools;
 - (b) redesign processes to avoid the need to use vibrating tools;
 - (c) provide information to ensure that vibration is controlled by correct installation;
 - (d) avoid resonance frequencies of the component parts of machinery and equipment;
 - (e) consider including remote control capabilities into equipment that causes vibration hazards; and
 - (f) use, where practicable, anti-vibration handles.
5. Seating in vehicles, including static plant with integral seating, should be designed to minimize transmission of vibration to the operator, and should permit an ergonomically good working position.
6. When purchasing equipment and industrial vehicles, employers should ascertain that the vibration exposure of the user is in line with national laws and regulations or other nationally and internationally recognized instruments.
7. Where old machinery is still in use, sources of vibration that present a risk to safety and health should be identified, and suitable modifications made by employing current knowledge of vibration damping techniques.
8. Where workers are directly or indirectly exposed to vibration transmitted via the floor or other structures, the vibrating machines should be mounted on vibration isolators (anti-vibration mounts), installed according to the manufacturer's instructions, or designed and manufactured according to internationally recognized instruments for plant and equipment.
9. Machinery or vibrating tools should be maintained regularly, because worn components may increase vibration levels.
10. Workers should have access to occupational health services (see Chapter 5, section 5.1), where available, so that they can discuss possible symptoms of exposure to whole-body vibration or to hand-arm vibration with qualified practitioners.

11.6. Electricity

1. Electrical equipment, conductors and wiring must be installed in a manner consistent with national laws or accepted standards and should be kept in a good condition. Major modifications to power systems and electrical equipment should be inspected to verify compliance with national laws or accepted standards.
2. Maintenance and repair of electrical equipment and electrical work should only be performed by suitably certified and competent persons, in conformity with national laws or accepted standards.
3. The employer should conduct an analysis of the factory's power system and an assessment of the risks that workers might be exposed to while in proximity to or working with the electric equipment at the factory.
4. The employer should, based on the analysis and risk assessment, prepare and implement an electricity control plan, which should cover:
 - (a) the examination and testing of all electrical equipment before use, after installation, reinstallation or repair; and
 - (b) the systematic and regular examination and testing of all electrical equipment at the textiles, clothing, leather or footwear factory to ensure its proper maintenance, including ensuring that accumulation of dust is not permitted.
5. Notices should be posted in prominent locations at the factory:
 - (a) prohibiting any unauthorized person from handling or interfering with electrical equipment; and
 - (b) setting out directions as to the rescue and first aid of persons suffering from electric shocks or burns.
6. Electrical installations and distribution areas should be guarded against accidental damage. They should be protected from inadvertent access by fencing or locked installations and appropriate warning signs should be posted.
7. All electrical equipment and circuits should be provided with properly designed switchgear to facilitate control and, when necessary, isolation or lock-out. Principal power switches and terminals should be appropriately labelled to show which units they control.
8. All electrical distribution panels, breakers, switches and junction boxes should be completely enclosed and protected from wet conditions.
9. All power wires and cables should be adequately insulated where they pass into or out of electrical compartments. Cables should enter metal frames of motors, splice boxes and electrical compartments only through proper fittings. Ground fault circuit interruption should be in place in wet locations.
10. The current in all systems should be so controlled that when, in any circuit, the current exceeds a specified value, it is automatically cut off. Fuse links of all fuses and circuit breakers should be calibrated by the manufacturer and the rated current should be indicated. The use of unmarked or uncalibrated fuses and circuit breakers, or defeating fuses or bridges, should be prohibited.
11. Trailing cables should be attached to machines in a suitable manner to protect the cable from damage and to prevent strain on the electrical connections.

12. A cable that has been mechanically damaged should be taken out of service as soon as possible. Any cable requiring repair should be disconnected from the feed point and any residual electrical charges should be discharged.
13. The employer should instruct and train all workers on electrical safety and requirements for reporting electrical deficiencies.
14. For additional control measures to eliminate and reduce electrical hazards and risks in large textiles, clothing, leather or footwear factories, the code of practice on safety and health in shipbuilding and ship repair (2019) can be consulted.

11.7. Electric and magnetic fields code of practice on safety and health in shipbuilding and ship repair (2019)

1. Electric and magnetic fields are found around all equipment that passes an electric current, including in welding and inspection, using techniques based on magnetic particles. Some studies indicate that exposure to magnetic fields might cause certain types of cancers and brain tumours. They can also affect a person's mood, alertness, heart function, and the immune and reproductive systems. Some individuals suffer from skin irritation in the presence of electrical fields.
2. Unlike electric fields, magnetic fields cannot be easily screened off, as they can pass through all materials. However, the power of the field rapidly diminishes as the distance from the source of the magnetic field increases. It is generally advisable to shut down all electrical equipment when not in use.
3. Workers with heart pacemakers should not be exposed to magnetic fields of a strength likely to affect the device. Pregnant women should not be exposed to magnetic fields of a strength likely to affect the foetus. Equipment producing such fields should be clearly signposted.
4. Fixed installations which generate high strength fields, such as transformers and switching stations, should be sited as far away from work areas as possible.
5. Further guidelines and recommendations can be found in *Protection of Workers from Power Frequency Electric and Magnetic Fields: A Practical Guide*, ILO Occupational Safety and Health Series No. 69 (Geneva, 1994).

11.8. Radiation

11.8.1. Hazard description

1. All human beings are exposed to a background of naturally occurring radiation that is relatively harmless. However, when sources of radiation are concentrated or there is increased exposure, harmful effects may result. The most common harmful effect, at relatively low doses, is a change to chemical compounds in the body that can lead to diseases such as cancer.
2. Radiation can be classified by the amount of energy it has. Radiation with enough energy to cause a change in the atoms that it hits is called ionizing radiation. Radiation without that amount of energy is called non-ionizing radiation, which includes radiation from the sun and from welding operations and the use of lasers and other machinery and equipment.

11.8.2. Ionizing radiation

1. Beyond certain thresholds, ionizing radiation can impair the functioning of tissues and organs and can produce acute health effects such as skin redness, hair loss, radiation burns and acute radiation syndrome. If the radiation dose is low and if it is delivered over a long period of time (low dose rate), the effects are substantially lower because there is a greater likelihood of repairing the damage. There is still a risk of long-term effects such as cancer, however, that may appear years or decades later.

11.8.2.1. Risk assessment

1. The employer should perform a risk assessment as follows:
 - (a) identification of sources of radiation and related hazards;
 - (b) evaluation of risk associated with hazards; and
 - (c) identification of control measures required to reduce or eliminate risk of exposure.
2. The risk assessment should be conducted regularly and upon receipt of new equipment, a move or a major alteration of work practices.
3. Radiation exposure monitoring should be implemented in accordance with nationally and internationally recognized instruments.

11.8.2.2. Control measures

1. Equipment that produces ionizing radiation should be designed with guarding and interlocks to prevent overexposure and should be correctly used and maintained in accordance with recognized international instruments.
2. The employer should prepare and implement written procedures for work practices that minimize radiation exposure; for handling or working with radiation sources; and for emergencies.
3. Signs should be used when using ionizing radiation devices to ensure that other workers are not exposed to the hazard.
4. Exclusion zones should be developed as per the manufacturer's instructions and access should be restricted to areas where ionizing radiation devices are used.
5. The employer should provide workers with information and training at the time of initial assignment and on a regular basis thereafter. The training should cover:
 - (a) the types of radiation present at the factory facility;
 - (b) effects of radiation;
 - (c) specific hazards to which workers may be exposed;
 - (d) exposure levels and resulting risks;
 - (e) the control of those hazards and risks;
 - (f) safe work practices;
 - (g) proper use of PPE; and
 - (h) emergency procedures.

6. Health surveillance measures for textiles, clothing, leather and footwear manufacturing operations should take into account the potential of exposure to ionizing radiation where this is an issue at the factory.

11.8.3. Non-ionizing radiation

1. Workers performing operations where they are exposed to non-ionizing radiation – such as ultraviolet light, visible light (including sunlight) and infrared light – should be provided with adequate personal face and eye protective equipment.
2. For the purpose of detecting precancerous lesions of the skin, workers continually working under non-ionizing radiation exposure, including exposure to the sun, should be under medical surveillance at regular intervals.

11.9. Extreme heat and high humidity

11.9.1. Hazard description

1. Workers who are exposed to extreme heat or work in hot and humid environments may be at risk of heat stress. Exposure to extreme heat and high humidity can result in occupational illnesses caused by heat stress, including heat stroke, heat exhaustion, heat syncope, heat cramps, heat rashes or death. Heat and humidity can also increase the risk of injuries as it may result in sweaty palms, fogged-up safety glasses and dizziness. Other heat injuries, such as burns, may occur as a result of contact with hot surfaces, steam or fire.
2. In the textiles, clothing, leather and footwear industries, heat stress arises in situations when:
 - (a) temperature and/or humidity are unusually high, with limited movement of air;
 - (b) workers are exposed to high radiant heat;
 - (c) high temperatures and/or humidity occur in combination with protective clothing, physical exertion or a high work rate; and
 - (d) workers do not have access to, or drink, sufficient water.

11.9.2. Risk assessment

1. If workers are exposed in all or some of their tasks to extreme heat and high humidity, and the hazard cannot be eliminated, employers should assess the risks to safety and health and determine the controls necessary to remove the hazard or risks or to reduce them to the lowest practicable level.
2. The assessment should take into account that the use of protective clothing against hazardous substances can increase the risk of heat stress, and also that respiratory protectors are uncomfortable and less likely to be used in extremely hot working environments.
3. In assessing the hazards and risks, the employer should:
 - (a) make comparisons with other similar workplaces where measurements have been made;
 - (b) where this is not practicable, arrange for measurements to be performed by a technically capable person, using appropriate and properly calibrated equipment;

- (c) seek the advice of the occupational health service or a competent body about the exposure standards to be applied and how to comply with these limits; and
- (d) consider the individual susceptibility of workers, including their age, sex, physical condition, previous health issues and heat-related illness and medication, with particular attention to pregnant and nursing women.

11.9.3. Control measures

1. Where unhealthy or uncomfortable conditions arise from increased air temperature, the employer should implement means to reduce air temperature, which may include ventilation or air cooling.
2. The employer should ensure that the appropriate mechanical aids are available to reduce workloads and that tasks performed in hot and humid environments are well designed ergonomically for both women and men to minimize physical stress.
3. Where part of the risk arises from the metabolic heat produced during work or from direct exposure to sunlight and high outdoor air temperatures, and when other methods of eliminating the risk are impracticable, employers should arrange a work-rest cycle for exposed workers, preferably in a shaded, air-conditioned or cooler resting space. The rest periods should be as prescribed by the competent authority and should be sufficient to allow the worker to recover.
4. For hydration maintenance, employers should make available sufficient quantities of drinking water, with the proper electrolytes, where appropriate.
5. Where 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 and humid conditions if symptoms occur. The employer should ensure that first-aid facilities, and staff trained in the use of such facilities, are available.
6. Workers exposed to extreme heat and humid conditions should be instructed and trained:
 - (a) to recognize symptoms which may lead to heat stress, in themselves or others, and the steps to be taken to prevent onset and/or emergencies; and
 - (b) in the action to be taken in the event of the increased risk of accidents because of high temperatures or humidity.
7. Workers should be advised of:
 - (a) the importance of physical fitness for work in hot and/or humid environments; and
 - (b) the importance of drinking sufficient quantities of a suitable liquid and a diet that ensures the intake of salt and potassium and other elements that are depleted due to sweating.

11.10. Cold

1. Workers should be protected against the severest forms of cold stress, hypothermia and cold injury. In cold climates, during the cold season, as far as practicable:
 - (a) factories should be heated to provide warm, comfortable and safe working conditions;

- (b) facilities should be provided for workers to warm themselves when working outdoors in exposed conditions; and
- (c) suitable protective clothing should be provided and worn to prevent injury to body extremities.

▶ 12. Safety requirements for tools, machines and equipment

12.1. Hazard description

1. All tools, machines and equipment can be the source of diverse hazards and great attention should be paid to their design, manufacturing, planned and actual use, maintenance, cleaning and disposal to reduce associated risks to workers.
2. To ensure that tools, machines and equipment are safe, key decisions have to be taken at the concept/design and manufacturing stages. This code does not cover these decisions, as the steps to be taken by designers and manufacturers of machines are not undertaken in textiles, clothing, leather and footwear factories. It is, however, recommended that the guidance in the ILO code of practice on safety and health in the use of machinery (2013) should be followed by designers and manufacturers of tools, machines and equipment and taken into consideration by employers when choosing tools, machinery and equipment.

12.2. Risk assessment

1. Employers should inform themselves of relevant standards specific to tools, machines and equipment and carry out a risk assessment to determine the measures required to eliminate the hazard or the control strategies required to minimize risk.
2. When carrying out the risk assessment, the employer should:
 - (a) include an evaluation of the state of the machines in question in terms of their condition, maintenance and repair, including but not limited to the adequacy of guards and operating procedures;
 - (b) identify the movement of machinery parts that may have the potential to cause injury, for example by entanglement, friction or abrasion, cutting, shearing, stabbing or puncture, impact, crushing, or drawing a person into a position where injury can occur;
 - (c) assess whether the installation, use and vibration of machines and equipment will result in the live loads imposed on the factory exceeding the approved load ratings of the building, including its floors, mezzanines and roofs; and
 - (d) determine whether workers have been suitably informed, instructed and trained on the hazards they face and consistently follow safe working procedures.
3. The employer should reassess the risks arising from the use of existing machinery periodically, whenever modifications are made, or if work conditions change significantly, taking into account the information provided by the manufacturer and supplier. Where such information is not available, the employer should seek information from other relevant sources.
4. The employer should continuously monitor the safety of the machinery, including any changes in the working environment and organization of work; where changes are found to have occurred, a new risk assessment may be necessary.
5. The employer should take appropriate measures to protect workers against the risks identified by the assessment. First, hazards should be eliminated by technical means such as substitution. Where this is not possible, the employer should ensure that safety and

health issues are managed through technical measures such as engineering controls, layout design, barriers, upgraded guards and protective devices, ventilation, noise enclosure and ergonomic solutions. If that is not possible, the safety of workers should be ensured, where appropriate, through training and safe systems of work and supervision and, where residual hazards cannot be controlled by these measures, through the use of PPE, backed up by appropriate safety information and signs.

12.3. Control strategies

1. In accordance with the provisions of the Guarding of Machinery Convention (No. 119) and Recommendation (No. 118), 1963 and the code of practice on safety and health in the use of machinery, all tools, machines and equipment used in the textiles, clothing, leather and footwear industries should:
 - (a) comply with safety and health requirements as prescribed in international or national standards and recommendations, wherever these are available;
 - (b) be of good design and construction, taking into account, as far as possible, safety and health and ergonomic principles;
 - (c) be maintained in an efficient state, in efficient working order and in good repair;
 - (d) inspected before each use;
 - (e) be used only for work for which they have been designed and in line with the manufacturer's instructions, unless it has been assessed by a competent person who has concluded that such use is safe;
 - (f) be used or operated only by workers who have been authorized and given specific training; and
 - (g) be provided with pulley guards, rail guards, trip guards, isolation covers for rotating and moving parts, needle and eye guards, and other protective guards, shields interlocks, two-hand controls or other devices, as required by national laws or regulations.

12.3.1. Engineering controls

1. Where hazards cannot be eliminated or substituted, engineering controls can greatly reduce the level of risk and should be used whenever possible to reduce exposure to noise, vibration and ergonomic hazards as well as to smoke, dusts, waste materials and other hazardous substances.
2. The employer should ensure that to the extent possible, risks are reduced by adjusting the machinery to the worker and by means of guarding those parts of machines and equipment that may cause injury, including through the use of pulley guards, rail guards, trip guards, isolation covers for rotating and moving parts, and needle and eye guards.
3. The employer should ensure such guards, whether fixed guards, light guards, pressure bars and mats or other types of machinery guarding, are used whenever necessary and properly fastened in place with appropriate fasteners such as screws or nuts and bolts which need tools to remove them.
4. The employer should ensure that in circumstances where workers require regular access to parts of the machine and a fixed guard is not possible, an interlocked guard should be used. This will ensure that the machine cannot start before the guard is closed and will stop if the

guard is opened while the machine is operating. If access is required to parts that are normally guarded in operation, the machinery should be shut down and the power source isolated or locked off to prevent inadvertent start-up.

5. The employer should ensure that established systems for inspections exist to ensure that guards are properly maintained and defects are rectified.

12.3.2. Safe working systems and procedures

1. The employer should ensure that tools, machinery and equipment are selected so as to be suitable for their intended use, and that they are not misused.
2. The employer should not permit the use of any unsafe or faulty tools, machinery and equipment. He or she should develop a system for identification and tag-out of defective tools, machines and equipment to ensure they are not used.
3. Adequate tools, equipment and machinery for both women and men workers should be provided in order to avoid accidents, injuries and diseases linked to tools, equipment and machinery not ergonomically suited.
4. The employer should ensure that workers are trained and know how to operate tools, machinery and equipment before they are directed to do so. This should include any safety features, emergency stop procedures, the proper use of guards and requirements for PPE.
5. The employer should ensure that various hazards including shear points, pinch points and wrap points are identified and guarded and that workers are made aware of these hazards and trained and supervised to avoid them.
6. The employer should ensure that workers are instructed never to use a tool, machine or equipment unless they are trained to do so.
7. Workers should not operate machinery or equipment unless the guards are in position and all protective devices are working.
8. The employer should ensure that safe work protocols ensure adequate protection with regard to noise, vibration and ergonomics, as well as exposure to smoke, dusts, waste materials and other hazardous substances.
9. Workers have the right to safely stop tools, machines and equipment if it or any implement is not working safely or if any guards or protective devices are faulty, and inform the supervisor as soon as possible.
10. The employer should ensure that all clearing of blockages and other reasons for gaining access to dangerous tools, machines and equipment is carried out while these are stopped.
11. No tool, machine or equipment should be left running when the operator leaves it.
12. The employer should ensure that machinery and equipment, including their guards and other safety devices, are regularly maintained and kept in a safe condition. Records of such maintenance should also be kept.
13. The employer should ensure that tools are kept in an efficient state, in good repair and in good working order. Tools with broken or cracked handles or components and bent or broken implements should be replaced.
14. Tools, machines and equipment should be so designed as to allow easy and safe maintenance and minor repair at the factory. Workers who operate tools, machines and equipment should be trained to do day-to-day maintenance and minor repairs. The

employer should ensure that workers are properly trained and supervised in the maintenance and minor repairs of tools, machines and equipment.

15. Only competent persons should carry out repairs on tools, machines and equipment. Prior to such repairs of powered equipment, the power should be turned off, the movement of all rotating parts stopped and safety locks engaged. Lockout and tag-out standards should be followed.
16. Where there are still some residual risks that cannot be reduced by other means, the employer should provide appropriate PPE.

12.4. Control measures for selected tools, machines and equipment

12.4.1. Sewing machines

1. The employer should ensure that guards such as barrier guards, pulley guards, eye protection guards, needle guards and electronic safety devices are provided to protect the operator and other workers in the sewing machine area from hazards such as those created by points of operation, ingoing nip points, rotating parts, flying chips and sparks, as well as from noise, heat, fumes and other non-mechanical hazards. These guards should be affixed to the machine, where possible, and secured elsewhere if for any reason attachment to the machine is not possible. Each guard should be designed so that it does not offer an accident hazard in itself.
2. When sewing machines with unguarded hand wheels and belts located above the table tops are used, the distance between the point where the operator is holding material with both hands and the belt area should be sufficient to prevent any part of the operator's body from being exposed to danger. The tabletop should also be arranged or of adequate size to prevent any other worker who may be passing by or working adjacent to the wheel or belt from being exposed.
3. In order to facilitate safe threading, the employer should ensure that lighting is adequate and stays on when the motor of the sewing machine is switched off. Seating should allow for good posture and ease of movement.
4. The employer should also put in place a system to inspect guards, needles and work areas on a regular basis, and should implement a safe system of work that includes removing feet from the treadle when threading and changing needles. The power should be switched off when carrying out adjustments and needle-changing.

12.4.2. Presses and irons

1. The employer should ensure that high-temperature irons and presses should have controls to prevent injury to any person by burn, scald or sear. This includes:
 - (a) insulation, shielding, guarding or other engineering controls;
 - (b) limiting maximum temperature and liquid levels and providing lids or covers to reduce and prevent exposure and spills;
 - (c) providing information, instruction and training on the operation of presses and irons; and
 - (d) provision of PPE.

2. The employer should also ensure that tabletop steam irons are used on vacuum tables with exhaust ventilation in order to reduce steam and heat exposure.

12.4.3. Cutting machines

1. The employer should minimize or reduce the risks associated with cutting machines. Control measures include but are not limited to:
 - (a) clearly marking danger areas and using barriers to restrict access to these, especially at cutting tables;
 - (b) installing warning signals to indicate when the blade is in motion on motorized and automatic cutting tables;
 - (c) using trip guards or other devices to prevent access when lay-up machines are in use;
 - (d) fitting cutting machines with automatic adjustable guards to fully cover the exposed part of the cutting blade;
 - (e) regularly checking the condition of the light, guards and table fittings;
 - (f) keeping electrical conductors in good condition;
 - (g) providing five-finger chain-mail gloves that fit all operators and ensuring these are worn at all times during cutting work and when handling blades;
 - (h) preventing the build-up of fluff, fly and off-cuts through the use of an effective system for cleaning cutting machines;
 - (i) implementing a safe system of work for changing and disposing of cutter blades; and
 - (j) disposing of old blades in a safe manner that precludes their use as do-it-yourself hand knives.

12.4.4. High-temperature dyeing machines

1. High-temperature dyeing machines are machines with an operating temperature of 100 degrees Celsius or more. To control risks associated with their operation and repair, the employer should ensure that high temperature dyeing machines have:
 - (a) suitable safety valves;
 - (b) an accurate pressure gauge;
 - (c) safe working pressures and corresponding temperatures clearly marked;
 - (d) a supply pipe fitted with a suitable reducing valve or similar automatic device;
 - (e) thermal locks fitted and maintained regularly on both the main machine and the sample machine;
 - (f) safety devices and gauges that are simple to read and understand and easily accessible;
 - (g) safety devices fitted on quick-opening doors; and
 - (h) hot parts guarded or lagged.
2. The employer should ensure that there is sufficient ventilation to remove steam quickly and effectively. Safe systems of work should be implemented to protect workers from trapped

pockets of super-heated water. Extra precautions should be taken if hydrogen peroxide is used.

3. High-temperature dyeing machines with winching, winding or automatic feeds should be fitted with an emergency stop button to allow instant access for workers and the employer should implement a safe system of work to reduce the risk of entanglement.
4. High-temperature dyeing machines should be subject to regular examination. Maintenance should only be carried out by competent persons. The access to equipment and high-temperature dyeing machinery, including steps, platforms, rails and gantries, should be well maintained and regularly cleaned to avoid slips, trips and falls.
5. The provision, maintenance and use of PPE that protect the worker against the hazards referred to by the manufacturer of the high temperature dyeing machine and as per the labels and chemical safety data sheets for the chemicals used.

12.4.5. Industrial laundry or drying machines

1. The employer should minimize or reduce the risks associated with industrial laundry and drying machines. Control measures include but are not limited to:
 - (a) insulating and covering steam pipes with heat resistant materials;
 - (b) installing other guards, such as barrier and pulley guards, to protect the operator and other workers from other hazards;
 - (c) providing each laundry or drying machine with means for holding open the doors or covers of inner and outer cylinders or shells while the machine is being loaded or unloaded;
 - (d) ensuring that quick-opening doors are fitted with safety devices such as emergency auto stoppers;
 - (e) implementing safe work procedures to ensure that chemicals handling and mixing is carried out by a competent person (see Chapter 9); and
 - (f) installing warning signals to indicate when industrial laundry and drying machines are in operation.
2. The provision, maintenance and use of PPE that protect the worker against the hazards referred to by the manufacturer of the industrial laundry or drying machine and as per the labels and chemical safety data sheets for the chemicals used.

12.4.6. Pressure vessels

1. The employer should minimize or reduce the risks associated with steam boilers and associated pipework, pressurized hot-water boilers, air compressors, air receivers and associated pipework, autoclaves, dye machines, gas storage tanks, chemical reaction vessels and other pressure vessels. Control measures include but are not limited to:
 - (a) pressure vessels and systems should comply with national laws and regulations or other nationally or internationally recognized instruments as regards materials design, construction, installation, inspection and testing;
 - (b) pressure vessels and systems should be installed, calibrated and tested in accordance with the manufacturer's recommendations;

- (c) steam distribution systems should be properly maintained and insulated prior to operation in order to prevent accidental contact by workers;
- (d) all pressure vessels and systems should be used only for the purpose they are designed for; there should be early warning systems to monitor pressure levels and abnormal conditions; and they should only be operated by competent persons;
- (e) all pressure vessels and systems should be included in preventive maintenance programmes to avoid breakdowns or failures of safety valves and warning systems, which at a minimum should include:
 - (i) annual inspections; and
 - (ii) technical tests of pressure pipelines, regulators, switches, safety valves, leakages, and material resilience and age;
- (f) pressure vessels and systems should be tested and repaired by competent persons only and should be repaired only after all pressure has been removed; and
- (g) all workers operating pressure vessels and systems should be trained on potential hazards and risks, safe working procedures and emergency procedures; and
- (h) boiler rooms should not be used for any purpose other than boiler operations.

12.4.7. Lasers

1. Lasers – or light amplification by stimulated emission of radiation – comprise equipment that produces a powerful narrow beam of light, which differs from ordinary light in that it is monochromatic, organized and directional. Lasers are increasingly used to measure and cut materials in textiles, clothing, leather and footwear manufacturing.
2. Improper use of laser controls and modification of safety features may cause serious eye injury and burns. High-intensity laser beams can produce extremely high temperatures and significant amounts of heat, which can cause materials to catch fire. Laser cutters generate fumes and vapours that can be highly toxic.
3. The employer should:
 - (a) identify and classify all lasers;
 - (b) identify their associated hazards;
 - (c) assess the risks of accidents, injury and diseases to workers; and
 - (d) eliminate or reduce the risk of occupational exposure.
4. All lasers should be installed safely, in accordance with the manufacturer's instructions, and should comply with relevant nationally and internationally recognized instruments.
5. Lasers should be designed with guarding and interlocks to prevent exposure to the beam. Common controls measures include but are not limited to:
 - (a) restricting laser areas to authorized personnel only, using signage, posting and access doors;
 - (b) regular calibration and testing of laser systems, as per the manufacturer's recommendations;
 - (c) checking all settings and correcting all laser system deficiencies prior to operation;

- (d) regular maintenance and keeping the work area clean and free of debris, clutter and flammable and combustible materials;
 - (e) safe working procedures for using lasers; and
 - (f) use of appropriate PPE.
6. The employer should ensure that workers are instructed never to stare into a laser beam, point the laser beam in direction of other people, and use lasers unless all covers are in place and interlocks are working properly.
 7. The employer should ensure that exhaust ventilation systems are installed and used in order to eliminate or reduce exposure to laser-generated air contaminants.
 8. The employer should provide workers with training at the time of initial assignment, which should cover:
 - (a) types of lasers present at the factory;
 - (b) effects of laser radiation and specific hazards to which workers may be exposed and how those hazards are controlled;
 - (c) safe working practices; and
 - (d) emergency procedures.
 9. In circumstances where it is impossible or impracticable to eliminate hazards or minimize risks through the above-mentioned control strategies, PPE should also be used.

12.4.8. Robots and advanced automated technologies

1. Accidents involving robots and advanced automated technologies could include:
 - (a) the arm of the robot and advanced automated technologies causes the accident through an unpredicted movement caused by component or software malfunctions;
 - (b) a workers' limb or other body part can be trapped between a robot's arm and other peripheral equipment;
 - (c) a gripper mechanism or an accessory of the robot's and advanced automated technologies' mechanical parts fails; and
 - (d) the power supplies to the robot and advanced automated technologies are uncontrolled.
2. Increased risk of accidents are likely to occur:
 - (a) if workers enter into the operating envelope of the robot and advanced automated technologies; and
 - (b) when workers are in close proximity to the robot system and advanced automated technologies for programming, teaching, troubleshooting, maintenance or repair purposes.
3. The employer should conduct a risk assessment for all new and used robots and ancillary equipment prior to the introduction of the robot and advance automated system, and in case the robot and advanced automated technologies have been moved or modified. The risk assessment should determine the controls and safety features necessary to achieve and maintain a safe work environment for workers.

4. The employer should train and instruct workers in the safe operation and maintenance of the robot system, advanced automated technologies and ancillary equipment. Competent persons with the required technical skills should be available at the factory to oversee the installation, deployment, maintenance and repair of robot and advanced automated technologies applications and the implementation of all related control strategies.
5. All robots and advanced automated technologies should comply with nationally and internationally recognized instruments and be provided with the technical information as to their design and use. They should be designed:
 - (a) to prevent exposure of workers to components, gears, drive belts or linkages;
 - (b) so that loss of electrical power, voltage surges, or changes in oil or air pressure do not impair the safe operation of the system;
 - (c) so that risks caused by breaking, loosening, or releasing stored energy are minimized;
 - (d) to prevent unauthorized or unintended modification of operating parameters; and
 - (e) with layers of protection and redundancy built into safety systems.
6. All robots and advanced automated technologies should be installed safely in accordance with the manufacturer's instructions and relevant nationally and internationally recognized instruments.
7. Each robot and advanced automated technology should have customized safety control features, depending on the particular hazards and risks of the robot and advanced automated technologies.
8. Common safety features to prevent unauthorized access into the operating envelope of the robot include:
 - (a) interlocked perimeter guards around the operating envelope of the robot and advanced automated technologies with safety sensors that ensure doors are closed;
 - (b) flashing lights, signs, or sounds to indicate the application is in use;
 - (c) safety light curtains, laser scanners, pressure-sensitive safety mats or other presence sensing devices to stop the robot and advanced automated technologies in case of unauthorized access;
 - (d) two-hand operating controls; and
 - (e) emergency stop devices.
9. Robots and advanced automated technologies should be maintained and repaired only by the manufacturer or by a competent person. Lockout and tag-out standards should be followed. When motion of the robot system or advanced automated technologies is required for maintenance, it should occur in manual mode at a speed that is less than full machine speed.
10. These above-mentioned safety features and control measures should be inspected at regular intervals.

▶ 13. Workplace transport safety

13.1. General provisions

1. Workplace transport is any activity involving powered industrial vehicles within a worksite. For the purposes of this code, it also includes lorries, trucks and vans that enter the site to bring or pick up goods, as well as the cars, motorbikes and scooters of those who work at the factory. Vehicles driven on public roads are excluded, except where the vehicle is being loaded or unloaded on a public road adjacent to a textiles, clothing, leather or footwear factory.
2. Powered industrial vehicles comprise any mobile power propelled vehicle used to carry, push, pull, lift, stack or tier materials. They are commonly known as forklifts, motorized pallet trucks, tractors, platform lift trucks, motorized hand trucks, rider trucks, fork trucks and lift trucks. Powered industrial vehicles are increasingly electric and some are autonomous or self-driving.
3. Powered industrial vehicles are involved in countless accidents in the textiles, clothing, leather and footwear industries and the cause of both fatalities and injuries:
 - (a) operators can be struck by moving, falling or shifting materials and equipment while loading, unloading or transporting it;
 - (b) operators can fall from powered industrial vehicles when mounting or dismounting or during transport;
 - (c) operators and bystanders can be struck or crushed in collisions during transport operations, both within the factory and when lorries, trucks, vans and passenger vehicles enter and exit the site, which can result in injuries and death as well as property damage; and
 - (d) chemicals and other hazardous substances can leak, spill or otherwise escape during transport, especially during an accident.
4. The employer should identify hazards and conduct a risk assessment for all powered industrial vehicles and associated tasks of loading, unloading and transportation of materials and goods. To manage workplace transport effectively and safely, the employer should consider four key areas:
 - (a) safe sites;
 - (b) safe vehicles;
 - (c) safe operators; and
 - (d) safe loads.

13.2. Safe sites

1. The competent authority, after consulting the representative organizations of employers and workers concerned, should establish safety and health requirements for workplace transport safety. To the extent possible, transport safety rules and signs for drivers and pedestrians in a worksite should be the same as those used on public roads, wherever a suitable sign exists.

2. The employer should ensure, where it is reasonably practicable, that powered industrial vehicle traffic is physically separated from pedestrian or bicycle traffic.
3. Factories and other places that are surrounded by fencing should have separate gates and doors for pedestrians and vehicles or other means of effective separation, and vision panels should be installed on gates that open onto vehicle traffic routes.
4. Roadways and other places where persons or vehicles move or are stationed should be segregated by means of separate and clearly marked vehicle and pedestrian traffic routes, using barriers and signs.
5. In this regard, the employer should ensure that traffic routes are so constructed and maintained as to be safe for the traffic that they have to carry:
 - (a) traffic routes should be wide enough for the safe movement of the largest vehicles, without sharp corners and blind bends, and should be safe for the turning of lorries, trucks and vans;
 - (b) speed limits should be introduced, enforced and controlled, including through traffic-control measures such as speed humps, chicanes and rumble strips;
 - (c) cast-iron columns, storage racking, pipework, cables and other objects vulnerable to impact from vehicles should be protected; and
 - (d) where possible, there should be a one-way system as this will reduce the need for vehicles to reverse and will help both pedestrians and operators.
6. The employer should likewise ensure that walkways are designed and constructed with proper marking, lighting, barriers and signage to ensure that workers:
 - (a) are alerted to blind corners, steps and stairs, active equipment and vehicle traffic and other hazards and risks as appropriate;
 - (b) can use handrails in stairwells and elevated places; and
 - (c) will not have to jump from platforms, loading docks or other high areas.
7. Workers should be instructed to:
 - (a) stay within the walkways, refrain from texting while walking and in general remain vigilant and avoid hazardous shortcuts; and
 - (b) keep a safe distance when walking near active equipment and avoid distracting other workers who are operating it.
8. Where pedestrian and vehicle traffic routes cross, they should be clearly marked using measures such as dropped kerbs, barriers and deterrent paving in order to help direct pedestrians to the appropriate crossing points.
9. Parking areas should be clearly indicated and there should be separate parking areas for commercial and private vehicles. There should also be designated areas where commercial vehicles can be loaded and unloaded.
10. When it is necessary to reverse powered industrial vehicles, the employer should ensure that trained and competent banksmen or signallers are available to help the operator avoid accidents, including by:
 - (a) installing barriers to prevent vehicles from entering pedestrian zones;
 - (b) planning and clearly marking designated reversing areas;

- (c) keeping people away from reversing areas and operations;
 - (d) using portable radios or similar communication systems;
 - (e) increasing the operator's ability to see pedestrians; and
 - (f) installing equipment on vehicles to help the operator and pedestrians, for instance reversing alarms, flashing beacons and proximity-sensing devices.
11. When vehicles are parked, their parking brakes and any additional vehicle restraints should always be applied. Operators should never leave a powered industrial vehicle unattended without ensuring that it is securely braked, the engine is off and the key to the vehicle has been removed and securely stored.
 12. Delivery times or no-driving periods should be scheduled to avoid or reduce the need for interaction between pedestrians and vehicles.

13.3. Safe vehicles

1. When acquiring powered industrial vehicles, the employer should carefully consider the working environment in which a specific vehicle will be used and the suitability of that vehicle for the workers using it, in consultation with workers or their representatives.
2. Powered industrial vehicles and the facilities and means for loading, unloading, charging and fuelling them should be designed and constructed to ensure that these activities can be performed safely. This includes but is not limited to:
 - (a) all safety features, including lighting, signalling, marking, brakes, tyres, horn, warning devices, mirrors and cameras, windscreens and wipers, fuel and exhaust systems, should comply with national laws and regulations or other nationally or internationally recognized instruments;
 - (b) access and egress from vehicles and loading areas should be designed to reduce slips, trips and falls;
 - (c) vehicles should be designed to prevent people from riding on them except in the seating areas that are designed to accommodate them;
 - (d) seat belts for vehicles should be provided and worn;
 - (e) load capacity should be visibly marked and not exceeded;
 - (f) cargo areas should be designed and constructed to prevent loads from shifting, moving, falling, leaking or otherwise escaping control during transport; and
 - (g) controls on forklifts and other vehicles should be designed to stop if manually released.
3. Powered industrial vehicles should be used and maintained in accordance with applicable laws, regulations and manufacturers' recommendations and, as appropriate, should be equipped with safety devices such as firefighting equipment.
4. The employer should ensure that all powered industrial vehicles are kept in good working order and periodically checked to ensure that they are mechanically sound and comply with national laws or regulations. Specialized vehicles such as forklifts should be thoroughly examined by a competent person and reports kept.
5. All safety-related systems and components should similarly be inspected periodically to ensure they comply with national laws and regulations. Any deficiencies should be reported

by workers and recorded and addressed by employers prior to resumption of use. All repairs should be carried out by competent persons only.

6. The operator of a vehicle should perform a safety check on the vehicle at the start of each shift and a record should be kept. Faults should be reported to the employer so that they can be addressed.
7. Powered industrial vehicles should be secured with engine off and key removed to prevent unauthorized start-up, handbrake on and brakes applied, elements lowered, transmission secured, and blocking and chocks in place, as appropriate.

13.4. Safe operators

1. The employer should ensure that all operators, both women and men, are physically able to operate powered industrial vehicles and, depending on the type of vehicle, have the requisite licences, training and skills with regard to the safe operation, load securement and loading and unloading procedures.
2. All training should be completed before an operator is permitted to use a powered industrial vehicle without supervision. The employer should ensure that younger or less experienced drivers are closely monitored by a competent person following their training to ensure they work safely.
3. The training should be conducted under the close supervision of a licensed trainer with sufficient knowledge and skills concerning the powered industrial vehicle on which they train. Training should include:
 - (a) information about site-specific traffic rules and procedures, the powered industrial vehicle(s) in use and their maintenance and repair schedules, and the materials transported;
 - (b) supervised and demonstrated instruction for each type of powered industrial vehicle operated; and
 - (c) evaluation of the operator's performance in the workplace.
4. Refresher training on relevant topics should be provided when any of the following occur:
 - (a) the operator has been observed operating the vehicle in an unsafe manner;
 - (b) the operator has been involved in an accident or near-miss incident;
 - (c) the operator has received an evaluation that reveals the operator is not operating the vehicle safely; and
 - (d) changes have been made in policies, procedures or workplace conditions in a manner that could affect the safe operation of the vehicle.
5. In such situations, the employer should furthermore increase the supervision of the operator to ensure he or she applies the training correctly and complies with procedures for the safe operation, loading and unloading of powered industrial vehicles.

13.5. Safe loads

1. To reduce the risks involved in loading and unloading, information should be provided on the nature of the load and how it should be properly loaded, secured and unloaded. This information should accompany the load and be available to all workers involved in loading, transportation and unloading activities.

2. Operators should ensure that cargo is staged for loading, where appropriate. They should likewise ensure that the cargo, when unloaded, is placed and maintained in stable, secure storage. Large loads and loads containing hazardous substances should be inspected by workers before loading, in transit, and after unloading.
3. Workers assigned to the loading or unloading of vehicles should be informed, instructed and trained to select and use the right equipment for the job, follow prescribed procedures for loading and unloading, and use all PPE recommended or required for the task.
4. Powered industrial vehicles should have their brakes applied and stabilizers in the correct position before loading or unloading. The loading and unloading area should be:
 - (a) clear of traffic and people not involved in the activity;
 - (b) on level ground;
 - (c) segregated from other work areas;
 - (d) clear of overhead cables, pipes, or other obstructions; and
 - (e) protected from bad weather, where possible.
5. Throughout loading and unloading, there should be a safe place where lorry, truck or van drivers can wait.
6. Measures should be in place to prevent vehicles being driven away during either loading or unloading at loading bays, including traffic lights on loading bays, vehicle restraints, and keeping keys in a safe place.
7. Loads should be secured to prevent them from moving during transport and to prevent accidents when unloading.
8. The employer should ensure that hazardous materials in transit are properly labelled according to the GHS, are not left unattended during transport, and are transported in a manner that prevents spillage or other release and exposures to unprotected persons and the environment.

▶ 14. Competence and training

14.1. General provisions

1. The necessary OSH competence requirements should be defined by the employer based on the provisions of national laws or regulations or, in the absence thereof, in consultation with worker representatives.
2. Appropriate training arrangements should be established and maintained to ensure that all workers are competent to perform their duties and responsibilities in respect of their own safety and health and that of their fellow co-workers. Women should have equal access to training and the training should be gender-sensitive.
3. The employer should have or should acquire the required OSH competence to identify and eliminate or control work-related hazards and risks, and to implement the OSH management system. Specific training needs can be identified from the initial and ongoing hazard identification, risk assessment, control and evaluation processes.
4. Training programmes should:
 - (a) cover all workers at the textiles, clothing, leather or footwear factory, including contractors and subcontractors, as appropriate;
 - (b) be conducted by competent persons;
 - (c) provide, in forms and languages easily understood by all workers, effective and timely initial practical and theoretical training before commencement of duties and refresher trainings at appropriate intervals, or further to significant changes in risk levels for workers or in their functions;
 - (d) include participants' feedback and evaluation of their comprehension and retention of the training with a view to the continuous improvement of the training;
 - (e) be reviewed periodically by the safety and health committee, where it exists, or by the employer in consultation with workers or their representatives, and modified as necessary; and
 - (f) be documented.
5. The form and the content of training should be devised and implemented in consultation with workers or their representatives. Training should be in accordance with the needs identified and include:
 - (a) pertinent aspects of OSH legislation, codes of practice, instructions on the prevention of accidents and diseases and any collective agreement, such as the obligations, responsibilities, duties and rights of competent authorities, employers, contractors, subcontractors and workers;
 - (b) the roles and functioning of occupational health services, safety and health officers, worker safety and health representatives, safety and health committees and industry tripartite committees;
 - (c) OSH management systems, including the identification of hazards and assessment of risks;

- (d) the nature and degree of hazards or risks to safety and health which may occur, including any factors which may influence that risk, such as appropriate hygiene practices;
 - (e) the correct and effective use of prevention, control and protection measures, especially engineering controls, and the worker's own responsibility for using such measures properly;
 - (f) operating procedures while working in high-risk workspaces;
 - (g) correct methods for the handling of substances, the operation of processes and equipment, and for storage, transport and waste disposal;
 - (h) ergonomically correct methods for the handling of materials and tools;
 - (i) assessments, reviews and exposure measurements, and the rights and duties of workers in this regard;
 - (j) the role of health surveillance, the rights and duties of workers in this regard, and access to information;
 - (k) the proper use, maintenance, replacement and disposal of PPEs, where applicable;
 - (l) hazard warning signs and symbols for hazardous ambient factors which may occur;
 - (m) fire-protection and fire-prevention measures, including fire and emergency evacuation drills, procedures for first aid, notification and reporting of incidents;
 - (n) appropriate hygiene practices to prevent, for example, the transmission of hazardous substances off site; and
 - (o) general housekeeping, including cleaning, maintenance, storage and waste disposal, to the extent that these may cause exposure for the workers concerned.
6. Training should be provided to all participants at no cost to them and should take place during working hours. If this is not possible, workers should be compensated for overtime, and the timing and other arrangements should be agreed upon between the employer and worker representatives, taking into account the needs of workers with family responsibilities.
7. Employers should ensure that training and information requirements and procedures are kept under review, as part of the assessment review and documentation.
8. Before commencing work, on-site pre-work briefings should be completed which cover the scope of work, work method, identification of key hazards and risk assessment. Such briefings should be given to all workers on site, including contractors, subcontractors and other third parties. All relevant safety permits should be completed before work is commenced.

14.2. Qualification of managers and supervisors

1. Managers and supervisors should be in possession of an appropriate qualification and training, or have gained sufficient knowledge, skills and experience to qualify on the basis of competence, to ensure that they are able to:
- (a) plan and organize safe textiles, clothing, leather or footwear manufacturing operations, including identification of hazards, assessments of risks and the implementation of preventive measures;

- (b) establish, implement and maintain an OSH management system;
 - (c) monitor the status of safety and health in those operations for which they are responsible; and
 - (d) take remedial action in the event of non-compliance with requirements.
2. Managers should receive technical and other training to allow them to fulfil their responsibilities for OSH.

14.3. Qualification and training for workers

1. Workers should be assigned and only perform work for which they have the required level of skills, knowledge and training.
2. Employers should ensure that all workers, including contractors, subcontractors and their workers, are:
 - (a) sufficiently educated and trained in the tasks they are assigned to and possess the relevant competence and skills certificates;
 - (b) suitably instructed in the hazards connected with their work and environment, as well as trained in the precautions necessary to avoid accidents and injuries to health;
 - (c) made aware of the relevant laws, regulations, requirements, codes of practice, instructions and advice relating to prevention of accidents and diseases;
 - (d) informed of their individual and collective responsibility for safety and health; and
 - (e) sufficiently instructed in the correct use and effects of PPE and its appropriate care, and have training made available to them, as appropriate.

14.4. Qualifications of contractors, subcontractors and other third parties

1. Contracts for services should contain standard clauses requiring contractors to employ only workers and subcontractors who possess relevant skills, and to comply with nationally and internationally recognized instruments and establishment OSH requirements.

▶ 15. Personal protective equipment

15.1. General provisions

1. In accordance with Chapter 3, section 3.4, paragraph 3, only where adequate protection against exposure to hazardous ambient factors through the elimination of hazards/risks, their control at source, their minimization by the design of safe work systems and collective measures cannot be ensured and all other measures are either impracticable or could not secure safe and healthy working conditions, suitable PPE should be provided and maintained by the employer.
2. The minimum requirements for mandatory PPE in textiles, clothing, leather and footwear manufacturing operations should be established and clearly communicated.
3. PPE should comply with technical standards set by the competent authority, or recognized by national or international bodies, taking ergonomic principles into account, and be provided, as prescribed by national laws and regulations:
 - (a) having regard to the type of work, the gender and body size of the worker and based on a risk assessment;
 - (b) without cost to the workers; and
 - (c) in consultation with workers and their representatives.
4. A competent person having a full understanding of the nature of the hazard, the residual risk and the type, range and performance of the protection required should:
 - (a) select suitable items of PPE; and
 - (b) arrange that PPE is properly stored, maintained, cleaned, examined, replaced and, if necessary for health reasons, disinfected or sterilized at suitable intervals, in accordance with nationally and internationally recognized instruments or guidance set or otherwise recognized by the competent authority.
5. PPE should be issued as new to an individual worker and not interchanged unless it has been maintained and properly sanitized.
6. PPE should be ergonomically designed and, as far as practicable, should not restrict the user's mobility or field of vision, hearing or other sensory functions.
7. The employer should provide all workers required to wear PPE with the information, instruction, training and means to enable them to use, maintain and store PPE correctly, without cost to the workers. The employer should provide such training to users and supervisors at the time of initial assignment and periodically thereafter, covering the following:
 - (a) when and why PPE is necessary;
 - (b) what PPE is necessary;
 - (c) how to properly don, doff, adjust and wear PPE;
 - (d) the limitations of PPE; and
 - (e) the proper care, maintenance, useful life and disposal of PPE.

8. Each worker should demonstrate an understanding of the training and the ability to use PPE properly before being allowed to perform work that requires the use of PPE. When the employer has reason to believe that a worker who has been trained does not have the understanding or skills required to use PPE properly, the concerned worker should be retrained. Retraining is also required when there have been changes in the workplace, when new PPE is introduced or when reviews of accident records have shown there are inadequacies in affected workers' knowledge or use of the assigned PPE.
9. Workers should be required to:
 - (a) make proper use of and take good care of PPE provided for their use;
 - (b) use the provided PPE throughout the time they are exposed to the risk that requires its use; and
 - (c) examine PPE periodically to ensure that it is in good condition and is replaced or repaired, as necessary, by the employer, at no cost to the user.
10. PPE that may be contaminated by materials hazardous to health should not be laundered, cleaned or kept at workers' homes. Accommodation for clothing should be provided when protective clothing is required to be used or when there is a risk of the contamination of outdoor clothing by hazardous materials. Changing facilities should be so situated and designed to prevent the spread of contamination from protective clothing to personal clothing and from one facility to another. Employers should ensure that workers do not take contaminated clothing home and should provide for the cleaning of such clothing at no cost to the worker.
11. Before reissuing the clothing or equipment, employers should provide for the laundering, cleaning, disinfecting and examination of protective clothing or equipment, which has been used and may be contaminated by materials that are hazardous to health.
12. Disposable PPE should never be reused.
13. In providing PPE, the employer should also be aware that:
 - (a) proper maintenance and use of PPE, including appropriate behaviour of the user, are essential in providing the protection for which it is designed;
 - (b) PPE itself may be uncomfortable and may increase the risk created by other hazards and thus additional control measures may need to be identified;
 - (c) only the user is protected, while others coming into the environment continue to be exposed; and
 - (d) PPE can provide a false sense of security, in particular when it is not properly used or has lost its effectiveness as a result of improper storage or maintenance.
14. PPE should meet all requirements of this code with respect to each hazard identified at the factory.

15.2. Protective clothing

1. Workers should wear the appropriate protective clothing provided by the employer.
2. The clothing supplied should meet the following requirements:
 - (a) waterproof clothing and head coverings when working in adverse weather conditions, which is adequate to the environment in which it will be worn;

- (b) distinguishing clothing or reflective devices or otherwise conspicuously visible material when there is regular exposure to danger from moving vehicles; and
- (c) the ability of the material from which the clothing is made to resist penetration by chemicals and biological agents, minimize heat stress, release dust, resist catching fire and not discharge static electricity, as far as technologically possible.

15.3. Head protection

1. Head protection such as helmets and bump or laceration caps protect against impact from falling, moving or flying objects and from bumping into fixed objects. Helmets and bump or laceration caps should be worn by workers exposed to the risk of head injury. Head protection should be selected with regard to the task and risks involved:
 - (a) helmets should be furnished to and used by all workers, contractors and subcontractors engaged in construction and other miscellaneous work;
 - (b) head protection is also required to be worn by engineers, inspectors, and visitors at construction sites or workspaces where hazards from falling or fixed objects or electrical shock are present; and
 - (c) bump or laceration caps should be issued and worn for protection for scalp laceration from contact with sharp objects, but should never be worn as substitutes for helmets as they do not afford sufficient protection from high impact forces or penetration by falling objects.
2. The shell of a helmet should be of one-piece construction, with an adjustable cradle inside to support the helmet on the wearer's head and, where appropriate, particularly for persons working overhead, a chinstrap to prevent the helmet from falling off. The cradle and chinstrap should be properly adjusted to ensure a snug fit as soon as the helmet is put on.
3. Any helmet or other head protection that has been submitted to a heavy blow, even if there are no evident signs of damage, should be discarded.
4. If splits or cracks appear, or if the head protection shows signs of ageing or deterioration, it should be discarded.
5. Where there is a hazard of contact with exposed conductive parts, only helmets made of non-conducting material should be used.
6. In addition to safety, consideration should also be given to the physiological aspects of comfort for the wearer. The head protection should be as light as possible, the harness should be flexible and should not irritate or injure the wearer, and a sweatband should be incorporated.
7. All protective headgear should be cleaned and checked regularly.

15.4. Face and eye protection

1. Suitable face shields or eye protectors should be used when workers are exposed to hazards from flying particles, dust, molten metal, acids or caustic liquids, chemical liquids, gases or vapours, bio-aerosols or potentially injurious light radiation.
2. Face and eye protectors are available in a wide variety of designs. Careful consideration should be given to the characteristics of the respective hazard to ensure the selection of the appropriate protector, including the following:

- (a) side protectors should be used when there is a hazard from flying objects;
 - (b) goggles and face shields should be used when there is a hazard from chemical splash, in which case face shields should only be worn over primary eye protection (safety glasses and goggles);
 - (c) for workers who wear prescription lenses, eye protectors should either incorporate the prescription in the design or fit properly over the prescription lenses;
 - (d) goggles designed to be worn over ordinary prescription glasses should be selected according to the hazards to be protected against; bearing in mind that ordinary prescription (corrective) glasses, unless manufactured to a safety standard, do not afford sufficient protection;
 - (e) equipment fitted with appropriate filter lenses should be used to protect against light radiation; and
 - (f) tinted and shaded lenses are not filter lenses unless they are marked or identified as such.
3. With the use of face and eye protectors, due attention should be paid to comfort and efficiency.

15.5. Hand, body and feet protection

1. Hands, body and feet should be protected against biological, chemical, physical and other hazards.
2. Protective gloves or gauntlets, appropriate barrier creams and suitable protective clothing to protect hands or the whole body, as required, should be worn while handling hot, hazardous or other substances which might cause injury to the skin.
3. Suitable gloves should be worn in the presence of risks from chemicals and other hazardous substances, lacerations, abrasions, punctures, burns, biological agents and harmful temperature extremes. Such gloves include but are not limited to five-finger metal chainmail gloves, surgical gloves, rubber gloves, fabric gloves, fire-rated gloves and leather gloves. The selection of gloves should take into account the type of work being done, as well as the performance characteristics of the gloves, the conditions, the duration of use and the hazards present. One type of glove will not work in all situations.
4. Skin protection should be worn when there is a possibility of chemical splashes to the body, when the atmosphere may contain contaminants that could damage the skin or be absorbed by the skin, or when contaminants could remain on the street clothes of a worker. The amount of coverage is dependent on the area of the body that is likely to be exposed. For small, controlled processes, an apron may be sufficient; for work above the head, a full body coverall may be required.
5. Footwear of an appropriate type should be used in workplaces where there is a likelihood of exposure to adverse conditions or injury to a worker's feet from pallet trucks, falling or crushing objects, hot or hazardous substances, sharp-edged tools or nails, or slippery or wet surfaces. Safety shoes or boots with impact protection are required to be worn when carrying or handling materials such as packages, objects, equipment and parts of heavy tools that could be dropped, as well as for other activities during which objects could fall on a worker's feet.

6. Appropriate safety footwear, such as shoes and boots, should have firm, slip-resistant soles and reinforced toecaps and should be worn properly at all times. Sandals and similar footwear should not be worn when working.
7. Footwear with suitable insulated soles should be worn by electricians or other workers who may be in contact with live parts.
8. Hand, body and foot protection should be available in appropriate sizes for those who are required to wear them.
9. Knee protectors should be provided by the employer when necessary.

15.6. Respiratory protective equipment

1. Appropriate respiratory protective equipment, suitable for the particular environment, should be provided for work in conditions where there is a risk of oxygen deficiency or exposure to poisonous, dangerous or irritating airborne dust, chemical or biological agents, fumes, vapours or gases. This is the case for a majority of workers in the textiles, clothing, leather and footwear industries.
2. The selection of correct equipment is essential and should be done in collaboration with those who need to wear the equipment. Since there is a wide variety of equipment available, and to ensure that it complies with national laws and regulations and is approved or recognized by the competent authority, advice should be sought from competent persons on the appropriate equipment for particular purposes. Home-made fabric masks generally do not provide proper protection against airborne dust particles or fabric fibres.
3. Different sizes and models should be available to accommodate a broad range of facial types. Beards and whiskers are likely to interfere with the face seal, as may the wearing of goggles, unless adequately designed for the purpose.
4. Respirators should be properly stored. Damage may occur if they are not protected from physical and chemical agents, such as vibration, sunlight, heat, extreme cold, excessive moisture or damaging chemicals.
5. All filters, cartridges and canisters used in the workplace should be labelled and colour-coded in accordance with national laws and regulations. Such labels should not be removed and should remain legible. Cartridges should be appropriate for the environment in which they are used.
6. Filters, cartridges and canisters should be monitored and changed based on a pre-determined schedule, with due consideration for the type of contaminant and related exposures. Change schedules should be determined by either experimental or analytical methods, the manufacturer's recommendation or using adequate mathematical models.
7. Workers should be trained in the use and care of equipment so that they are able to inspect the respirator immediately prior to each use to ensure that it is in proper working condition. Training should include procedures for putting on and taking off respirators, proper seal check process, cleaning and storage, and limitations and capabilities of the respirator. Retraining is needed when workplace conditions change and new types of respirators are used or when inadequacies in the workers' knowledge or use indicate the need thereof.
8. Each respirator should be used with an understanding of its limitations based on a number of factors, such as the level and duration of exposure, the characteristics of the chemical and the service life of a respirator.

9. Workers should be medically evaluated for their ability to wear a respirator safely before they are required to do so.
10. When negative pressure respiratory equipment is required, it should not be used without a proper documented fit test. Fit testing is required before initial use, whenever a different respirator face piece is used and at regular intervals thereafter.

15.7. Hearing protection

1. Workers who by the nature of their duties are exposed to high levels of noise should be informed about the hazard and risk and provided with, and should wear ear protectors. Various types of hearing protectors are available, including ear plugs and ear muffs, each of which may be of different design standards. Protectors should be of a type recommended as suitable for the particular circumstances and climatic conditions. Hearing protectors should be made available at the entrance to the noisy space; workers who enter on a regular basis should carry their own PPE. Noisy areas should be indicated and warning signs displayed at the location. The signs should indicate required PPE and measures.
2. Hearing protectors should be comfortable, and users should be trained to use them properly. Special attention should be paid to possible increased risk of accidents due to the use of hearing protectors. Hearing protection may reduce the capacity to locate sound sources and prevent warning signals from being heard. In these situations, consideration should be given to the installation of other warning systems, such as flashing lights.
3. No model is suitable for all persons. Those wearing hearing protectors should be able to choose from alternative products that meet the attenuation criteria. Earplugs should not be the only solution as not all people can wear them.
4. Hearing protectors only work well if they are worn correctly, in good condition and well maintained. Good maintenance consists of cleaning, changing replaceable parts such as cushions, and overall monitoring of the state of the hearing protector.

15.8. Protection from falls

1. Fall-protection equipment, attached to independent lifelines or suitable anchorages, should be worn where protection against falls cannot be provided by other appropriate means. Workers should be provided with and trained in the use of appropriate fall-protection equipment, such as harnesses and lifelines and, where necessary, shock-absorbing lanyards.
2. Appropriate and timely rescue should be provided when using fall-arrest equipment to prevent suspension trauma.

▶ 16. Special protection

16.1. Social security

1. The competent authority should ensure that all workers in the textiles, clothing, leather and footwear industries and their dependants are statutorily and effectively covered by national social security systems and schemes and that they are entitled to the benefits, in cash and in kind, provided thereunder.
2. Guided by the Social Security (Minimum Standards) Convention, 1952 (No. 102), the competent authority should seek to ensure that these workers and their dependants have access to health and allied care, income protection and compensation in case of sickness, work-related injury, temporary or permanent invalidity or disability, death of a breadwinner, unemployment, maternity, family responsibilities, old age or retirement. Whenever possible, the competent authority should raise the levels of protection made available to these workers and their dependants, guided by the more advanced ILO social security standards.
3. Where the entire range of statutory social security benefits is not applicable to all workers in the textiles, clothing, footwear and leather industries or to their dependants, the competent authority should seek to ensure that all persons in need have access to essential healthcare and basic income security, guided by the Social Protection Floors Recommendation, 2012 (No. 202).
4. Employers should, as prescribed by national laws and regulations, or in accordance with national conditions and practice, ensure that:
 - (a) every worker has an employment contract;
 - (b) every worker is registered with the competent authority for social security and that other formalities to ensure the coverage of all workers and their dependants are duly completed; and
 - (c) social security contributions are duly paid and remitted to the competent authorities.

16.2. Maternity protection

1. Maternity protection is important because it protects the safety and health of pregnant and nursing women and children, it protects against economic vulnerability due to pregnancy and maternity, and it is central to gender equality in employment.
2. In accordance with the provisions of the Maternity Protection Convention (No. 183) and Recommendation (No. 191), 2000, the competent authority should adopt regulations, policies and measures that provide for:
 - (a) protection of the health of pregnant and breastfeeding women and their children from workplace risks;
 - (b) maternity leave;
 - (c) maternity care benefits to ensure the mother and the child have access to quality healthcare without hardship;
 - (d) sick leave and sickness benefits in case of illness and complications;
 - (e) cash benefits to ensure the mother can support herself and her child during leave;

- (f) employment protection and non-discrimination;
 - (g) facilities and breaks for breastfeeding on return to work;
 - (h) parental leave during a period following the expiry of maternity leave; and
 - (i) access to the system of protection for adoptive parents, especially regarding leave, benefits and employment protection.
3. Employers should inform themselves about international instruments, national laws and regulations and the recommendations of the competent authority, and should formulate and implement, in consultation with workers and their representatives, a workplace policy on maternity protection.
 4. The employer should take measures to ensure that pregnant or breastfeeding women are not obliged to perform work that has been determined to be prejudicial to the health of the mother or the child or where an assessment has established a significant risk to the mother's health or that of her child.
 5. The employer should assess workplace risks related to the safety and health of pregnant or nursing women and their children. Where significant risk has been identified, the employer should take measures to provide, on the basis of a medical certificate, as appropriate, an alternative to such work in the form of:
 - (a) elimination of risk;
 - (b) an adaptation of her conditions of work;
 - (c) a transfer to another post, without loss of pay, when such an adaptation is not feasible; or
 - (d) paid leave, in accordance with national laws, regulations or practice, when such a transfer is not feasible.
 6. When adapting conditions of work, the employer should take particular measures in respect of:
 - (a) arduous work involving the manual lifting, carrying, pushing or pulling of loads;
 - (b) work involving exposure to biological, chemical or physical agents which represent a reproductive health hazard;
 - (c) work requiring special equilibrium;
 - (d) work involving physical strain due to prolonged periods of sitting or standing, to extreme temperatures, or to vibration.
 7. The employer should ensure that a pregnant or nursing woman should not be obliged to do night work if a medical certificate declares such work to be incompatible with her pregnancy or nursing.
 8. The employer should allow a woman to leave her workplace, if necessary, after notifying her employer, for the purpose of undergoing medical examinations relating to her pregnancy.
 9. The employer should provide maternity leave in accordance with national laws, regulations or practice. To the extent possible, measures should be taken to ensure that the woman is entitled to choose freely the time at which she takes any non-compulsory portion of her maternity leave, before or after childbirth.

10. In accordance with national laws and regulations, the employer should ensure that cash and sickness benefits shall be provided to women who are absent from work on leave both in respect of maternity leave and leave in case of miscarriage, complication or illness.
11. The employer should not terminate the employment of a woman during her pregnancy or absence on leave or during a period following her return to work, as prescribed by national laws or regulations. She should be guaranteed the right to return to the same position or an equivalent position paid at the same rate at the end of her maternity leave.
12. The employer should respect the right of breastfeeding mothers to one or more daily breaks or a daily reduction of hours of work.
13. The employer should establish the facilities for nursing and for storing expressed milk under adequate hygienic conditions at or near the workplace.

16.3. Working hours and overtime

1. Any OSH policy or plan should provide for reasonable working hours, which should not exceed the number prescribed by national laws and regulations or in collective agreements.
2. Overtime hours should be agreed between workers and employers in a scheduled and predictable manner, when possible, and these hours should be compensated at rates as prescribed in national laws and regulations or in collective agreements and should not exceed the limits of overtime hours set out in these.
3. Overtime hours should not be performed on consecutive days, but where overtime hours are agreed between workers and employers, then extra daily (or nightly) rest and breaks should be provided to limit the cumulative impact of overtime working hours on workers.
4. If overtime working hours are performed on more than one day, the overtime hours should not exceed weekly overtime limits prescribed in national laws and regulations or in collective agreements.
5. Working hours can be organized into different working-time arrangements, which should be addressed through national laws and regulations or in collective agreements. Such arrangements include but are not limited to basic flexitime, staggered working hours, compressed work weeks, hours-averaging schemes and temporary part-time work. Adjustments can be made to working-time arrangements through dialogue in advance between workers' representatives and employers, but these should comply with national laws and regulations or collective agreements.
6. Conditions for part-time work should be addressed through prescribed national laws and regulations or in collective agreements. Employers should inform themselves of relevant laws and regulations and take measures to ensure that part-time workers receive the same protection as that accorded to comparable full-time workers in respect of the right to organize, the right to bargain collectively, non-discrimination and OSH. They should also ensure that part-time workers are offered conditions equivalent to those of full-time workers in the fields of social security, maternity protection, termination of employment, and paid sick leave and annual leave.

16.4. Night work

1. In view of the hazardous nature of textiles, clothing, leather and footwear manufacturing, the consequences of fatigue on accident frequency, severity and health should be considered.

2. Before introducing night-work schedules, the employer should consult workers and/or their representatives on the details of such schedules and the forms of organization of night work that are best adapted to the factory and its workers as well as on the occupational health measures and social services which are required, as prescribed by national law, regulations or collective agreements.
3. Specific measures required by the nature of night work should be applied progressively. Such measures should comprise:
 - (a) health assessments to identify and monitor health problems associated with night work; and
 - (b) compensation in the form of working time, pay or similar benefits, and appropriate social services.
4. The employer should take the necessary measures to maintain the same level of protection against occupational hazards during night work, as by day, in particular avoiding the isolation of workers.
5. Where night work is required, lighting and other safety and health conditions should be managed to ensure that risks do not exceed those in daytime operations.
6. Night workers certified, for reasons of health, as unfit for night work should be transferred, whenever practicable, to a similar job for which they are fit during the day.

16.5. Working alone

1. Working alone should be avoided. If it is necessary, the employer should take appropriate measures for the protection of workers working alone or in isolation.

16.6. Rest periods

1. Working hours should be arranged so as to provide adequate periods of rest which, as prescribed by national laws and regulations, or approved by labour inspectorates or through social dialogue, where applicable, should include:
 - (a) short breaks during working hours, especially when the work is strenuous, dangerous, monotonous or requires high concentration, to enable workers to recover their vigilance and physical fitness;
 - (b) sufficient breaks for meals;
 - (c) daily or nightly rest;
 - (d) weekly rest; and
 - (e) annual leave.

16.7. Fatigue

1. Fatigue can be a contributing factor to dangerous occurrences or serious accidents because workers may not be alert or able to quickly respond to changing circumstances. In addition, prolonged fatigue can lead to long-term health problems.
2. Fatigue results from a number of factors, including environmental conditions, such as excessive heat and humidity, cold or noise; physical or mental overexertion; and insufficient

rest and sleep between activities (for example, from poor-quality sleep). The interrelated causes of fatigue include:

- (a) time of day that work takes place;
 - (b) length of time spent at work and in work-related duties;
 - (c) type and duration of work tasks and the environment in which they are performed;
 - (d) the ergonomic design of workstations and the environment in which work is performed;
 - (e) quantity and quality of rest obtained prior to and after a work period;
 - (f) activities outside work, such as family commitments or a second job; and
 - (g) individual factors, such as sleep disorders.
- 3.** Acute fatigue is caused by immediate episodes of sleep deprivation; for example, because of long periods of wakefulness from excessively long shifts or night shifts without adequate daytime rest. Ongoing sleep disruption can lead to sleep debt and chronic sleep deprivation, placing individuals in a state of increased risk to themselves and to others. It results in:
- (a) unpleasant muscular weariness;
 - (b) tiredness in everyday activities; and
 - (c) reduced coordination and alertness.
- If sleep deprivation continues, work performance can deteriorate even further.
- 4.** As mentioned above, fatigue can result from features of the work and the workplace and from features of a worker's life outside work. While the contribution of non-work-related factors varies considerably between individuals, levels of work-related fatigue are similar for different individuals performing the same tasks. Non-work-related fatigue is best managed at an individual level, whereas work-related fatigue can and should be assessed and managed at an organizational level.
- 5.** The pace of work in the textiles, clothing, leather and footwear industries has increased with fast fashion cycles and the use of piece rates. Long hours of work, particularly intense manual labour, contribute to workers' fatigue and lead to accidents on the job. Work-related causes of fatigue furthermore include:
- (a) aspects of the tasks being undertaken (for example, greater workload within standard shifts);
 - (b) roster design (for example, too many consecutive night shifts);
 - (c) unplanned work, overtime, emergencies, breakdowns and call-outs;
 - (d) features of the working environment (such as noise or temperature extremes); and
 - (e) commuting times.
- 6.** Non-work-related causes of fatigue include:
- (a) sleep disruption due to ill family members;
 - (b) strenuous activities outside work, such as a second job;
 - (c) sleep disorders;

- (d) inappropriate use of alcohol, prescription and illegal drugs; and
 - (e) stress associated with financial difficulties or domestic responsibilities.
7. A fatigue risk assessment should be carried out and a written fatigue management plan drawn up for all operations and in accordance with national laws if national laws prescribe. The fatigue management programme should specify working-time arrangements where workers:
- (a) carry out work between 7 p.m. and 6 a.m.;
 - (b) work more than 48 hours in any consecutive five-day or six-day period (working on each day) including unplanned work, emergencies, overtime, breakdowns and call-outs; or
 - (c) do not have a minimum of at least 24 consecutive hours off in any seven-day period.
8. Additional fatigue hazards identified during the risk assessment should be included in the plan.
9. The risk assessment and the fatigue management plan should be developed in consultation with workers and their representatives, and there should be a demonstrated commitment from all parties that it will be supported by the whole organization. It should cover the workloads, rosters, roles and responsibilities of managers, professional staff, contractors, subcontractors, those who work on planned rosters and unplanned work such as overtime and call-outs, and should identify the situations of both work overload and work underload. Commuting times as well as suitability of employer-provided accommodation should also be considered.
10. The fatigue management plan should identify ways to:
- (a) adjust and redistribute work assignments to ensure that workers receive an appropriate amount of work, taking into consideration their individual capacities and their particular situation; and
 - (b) review and clearly define tasks, responsibilities and results to be achieved, paying attention to task conflicts (for example quality versus quantity) and based on realistic expectations.
11. Daily and weekly working hours as well as piece-rate work should be arranged so as to provide adequate periods of rest (see section 16.6).
12. Extended workdays (above eight hours) should be contemplated only if:
- (a) the nature of the work and the workload permit; and
 - (b) the shift system is designed to minimize the accumulation of fatigue.
13. Any changes in work schedules that could affect OSH should be preceded by full consultation with the workers and their representatives.

16.8. Violence and harassment

1. In accordance with the provisions of the Violence and Harassment Convention (No. 190) and Recommendation (No. 206), 2019, the competent authority should adopt regulations, policies and other measures to define and prohibit violence and harassment in the world of work, including gender-based violence and harassment.

2. Employers and workers should inform themselves about international instruments, national laws and regulations and the recommendations of the competent authority, and should take into account violence and harassment and associated psychosocial risks in the management of OSH. They should formulate and implement, in consultation with workers and their representatives, a workplace policy on violence and harassment. Such a policy should:
 - (a) state that violence and harassment will not be tolerated;
 - (b) establish violence and harassment prevention programmes with, if appropriate, measurable objectives;
 - (c) specify the rights and responsibilities of the workers and the employer, including any disciplinary measures in case of violence and harassment;
 - (d) contain information on complaint and investigation procedures;
 - (e) provide that all internal and external communications related to incidents of violence and harassment will be duly considered, and acted upon as appropriate;
 - (f) specify the right to privacy of individuals and confidentiality while balancing the right of workers to be made aware of all hazards; and
 - (g) include measures to protect complainants, victims, witnesses and whistle-blowers against victimization or retaliation.
3. The employer should identify hazards and assess the risks of violence and harassment with the participation of workers and their representatives and take measures to prevent and control them. The risk assessment should take into account factors that increase the likelihood of violence and harassment, including psychosocial hazards and risks, as well as risks related to specific groups of workers, including but not limited to women, migrants, ethnic minorities, young people, older workers, persons with disabilities, persons living with HIV and other individuals belonging to groups in vulnerable situations that may be disproportionately affected by violence and harassment. Particular attention should be paid to the hazards and risks that arise from working conditions and arrangements, work organization and human resource management, as well as from discrimination, the abuse of power relations and the gender, cultural and social norms that support violence and harassment.
4. In consultation with workers and their representatives, the employer should take appropriate measures commensurate with their degree of control to prevent and protect workers from violence and harassment, including third parties, where appropriate. The employer should:
 - (a) ensure all workers are aware of the workplace policy on violence and harassment, and understand their rights and responsibilities in this regard;
 - (b) regularly consult with workers and their representatives to find out if violence and harassment is occurring or if there are factors likely to increase the risk;
 - (c) provide information and training to all workers, in local languages and in accessible formats that can be understood by all workers, on the identified hazards and risks of violence and harassment and the associated prevention and protection measures, including on reporting and dispute-resolution mechanisms;

- (d) implement administrative procedures to protect workers from violence and harassment and promote the equal and non-discriminatory treatment of workers in relation to task assignments, workload and working-time arrangements;
- (e) provide employers, managers, supervisors, workers, contractors and subcontractors with clear instructions on how to effectively defuse hostile situations involving them, their co-workers or third parties legally at the workplace;
- (f) ensure that workers have the right to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to life, health or safety due to violence and harassment, without suffering retaliation or other undue consequences, and the duty to inform management;
- (g) establish accessible, safe, fair and effective reporting, investigation and dispute-resolution mechanisms and procedures;
- (h) hold perpetrators to account and provide counselling or other measures, where appropriate, with a view to preventing the reoccurrence of violence and harassment;
- (i) provide information to all workers about public support services such as counselling and information services, hotlines, emergency services, medical care and treatment, psychological support, crisis centres and shelters, and specialized policy units, where such services exist, and facilitate access to these for victims; and
- (j) raise awareness about the effects of domestic violence in the world of work and inform all staff about public mitigation measures.

16.9. Alcohol and drugs at work

1. Problems relating to alcohol and drug use may arise from personal, family or social factors, or from certain work situations, or from a combination of these elements. Such problems not only have an adverse effect on the health and well-being of workers, but may also cause difficulties at work, including a deterioration in job performance. As there are multiple causes of alcohol- and drug-related problems, there are consequently multiple approaches to prevention, assistance, treatment and rehabilitation.
2. Employers and workers and their representatives should jointly assess the effects of alcohol and drug use in the workplace and should cooperate in developing and implementing a written alcohol and drug policy and programme for the factory.
3. Alcohol and other drug policies and programmes should promote the prevention, reduction and management of alcohol- and drug-related problems in the workplace. They should apply to all staff and the same restrictions or prohibitions with respect to alcohol should apply to both management and workers.
4. Information and training programmes concerning alcohol and drugs should be undertaken to promote safety and health in the workplace and should be integrated into broad-based health programmes when appropriate.
5. Alcohol and drug abuse is a disease and therefore should be dealt with, without any discrimination, like any other health disorder at work. Workers who seek treatment and rehabilitation for alcohol- or drug-related problems should enjoy fundamental principles and rights at work in accordance with the 1998 Declaration on Fundamental Principles and Rights at Work. Any information communicated should be treated with confidentiality.

6. The stability which results from keeping a job is frequently an important factor in facilitating recovery from alcohol and drug-related problems. Therefore, employers and workers should acknowledge the special role the workplace may play in assisting individuals with such problems.
7. Testing of bodily samples for alcohol and drugs in the context of employment involves moral, ethical and legal issues of fundamental importance, requiring a determination of when it is fair and appropriate to conduct such testing.
8. It should be recognized that the employer has authority to discipline workers for employment-related misconduct associated with alcohol and drugs. However, counselling, treatment and rehabilitation should be preferred to disciplinary action. Should a worker fail to cooperate fully with the treatment programme, the employer may take appropriate disciplinary action.
9. Further information can be found in the ILO code of practice on management of alcohol- and drug-related issues in the workplace (1996), *Alcohol and drug problems at work: The shift to prevention* (2003); and the SOLVE Training Package: Integrating Health Promotion into Workplace OSH Policies (ILO, 2012).

► 17. Welfare and well-being

17.1. General provisions

1. At, or within reasonable access of, every textiles, clothing, leather or footwear factory location or premises, the following facilities should be provided for both women and men. They should be safe, fully accessible to persons with disabilities, kept clean and maintained:
 - (a) drinking water;
 - (b) sanitary and washing facilities or showers;
 - (c) facilities for changing and for the storage and drying of clothing;
 - (d) accommodation for taking meals;
 - (e) childcare facilities;
 - (f) living accommodation for workers away from their homes; and
 - (g) waste disposal.
2. All workers should have access to an occupational medical service.
3. The scale of the above facilities, and their construction and installation, should comply with the requirements of the competent authority.
4. The welfare facilities should be provided with a view to avoiding the physical and psychological discomfort caused, in particular, by a crowded, unsafe, unhealthy and unstable living environment and a lack of privacy. Measures to improve workers' welfare should complement OSH measures to ensure that workers are safe, healthy, satisfied and engaged at work.

17.2. Drinking water

1. An adequate supply of wholesome drinking water of suitable temperature should be provided at, or within reasonable access of, every textiles, clothing, leather or footwear factory.
2. The communal use of glasses or other drinking water receptacles should be prohibited.
3. All drinking water should be from a source approved by the competent authority.
4. Transport tanks, storage tanks and dispensing containers should be designed, used, cleaned and disinfected at suitable intervals in a manner approved by the competent authority.
5. Water that is unfit to drink should be conspicuously indicated by notices prohibiting workers from drinking it.
6. Further information can be found in *WASH@Work: A Self-Training Handbook* (ILO, 2016).

17.3. Sanitary and washing facilities

1. Adequate sanitary and washing facilities, including hot and cold or warm running water, together with soap or other cleaning materials and single-use towels or other drying equipment, should be provided by the employer to enable workers to meet a standard of

personal hygiene consistent with the adequate control of exposure and the need to avoid the spread of materials hazardous to health.

2. Sanitary and washing facilities should be conveniently accessible but situated so that they are not themselves exposed to contamination from the workplace. The type of facilities should be related to the nature and degree of exposure. Where workers are exposed to skin contamination by poisonous, infectious or irritating substances, or oil, grease or dust, there should be a sufficient number of appropriate sanitary and washing facilities or showers.
3. Suitable toilets should be provided by the employer with hand-washing facilities and soap. The employer should ensure the following:
 - (a) toilet rooms should be marked distinctly for each gender by signs or easily recognizable symbols or pictures and should be separated by solid walls or partitions that extend from floor to ceiling;
 - (b) each water closet should occupy a separate compartment with a door and walls, or partitions between the fixtures that are sufficiently high to ensure privacy;
 - (c) urinals should be provided with an adequate water flush and should drain freely, and the drain construction should be such that it excludes flies and rodents;
 - (d) toilet paper should be provided;
 - (e) facilities for the disposal or washing of menstrual cloths should be provided in women's toilet rooms;
 - (f) hand-drying facilities should be provided in each toilet room;
 - (g) waste bins with tight closable covers should be provided in each toilet room;
 - (h) lighting should be provided for toilet rooms at all hours of day and night;
 - (i) each toilet room should be provided with sinks with clean hot and cold running water, either within the room or immediately outside it; and
 - (j) hand soap or similar cleansing agents should be provided.
4. Toilets and washing facilities should be kept clean and in a hygienic condition by the employer. The employer should ensure that:
 - (a) all walls are tiled or clean;
 - (b) there is adequate ventilation to remove foul odours;
 - (c) in order to facilitate cleaning, floors are maintained, so far as practicable, in dry condition and kept free from protruding nails, splinters, loose boards and unnecessary holes or openings;
 - (d) where wet processes are used, drainage is provided and maintained, and platforms, false floors, mats, other dry standing places or appropriate waterproof footwear is provided to workers; and
 - (e) floors should be sealed, slip-resistant and cleaned at regular intervals with solutions containing a bactericide.
5. Electric showers should be connected to an earthing system.
6. Further information can be found in *WASH@Work: A Self-Training Handbook* (ILO, 2016).

17.4. Facilities for changing and storing clothing

1. Separate facilities for changing and storing clothing should be provided for women and men workers at easily accessible places, and should include suitable facilities for:
 - (a) drying wet clothes, which should not be used for any other purpose; and
 - (b) changing clothing including, where necessary to avoid contamination, suitable lockers separating work from street clothing.
2. Facilities for storing personal clothing should be provided for each worker when protective clothing is used or when there is a risk of the contamination of personal clothing by hazardous materials.
3. Facilities for changing and storing clothing should be so situated and designed as to prevent the spread of contamination from protective clothing to personal clothing, and from one facility to another.
4. Suitable arrangements should be made for disinfecting facilities for changing and storing clothing and lockers, in conformity with the requirements of the competent authority.

17.5. Facilities and shelters for food and drink

1. Facilities and shelters should be made available, at or within easy access of the workplace, for protection from inclement weather and for washing, taking meals and for drying and storing clothing.
2. In order to reduce the risk of ingesting materials hazardous to health, employers should prohibit eating, chewing, drinking or smoking in work areas in which adequate control of exposure can only be achieved by workers wearing PPE to prevent exposure to materials hazardous to health and in any other area where such materials are likely to be present.
3. Where it is necessary to prohibit eating or drinking, suitable facilities should be set aside for these activities to be carried out in an uncontaminated area, which should be conveniently accessible from the work area.
4. Food and drink facilities should not have a direct connection to sanitary facilities but should be equipped with a hand basin and soap in addition to a supply of wholesome drinking water.
5. Unless outside facilities for cooked food are available for workers, adequate kitchens and canteen facilities for heating, warming, obtaining or preparing food and drink should be provided at, or near, the textiles, clothing, leather or footwear factory. The employer should ensure:
 - (a) that cooked food services are provided if workers have no other reasonable opportunities to obtain cooked food;
 - (b) sufficient seating capacity for all workers who may be scheduled to eat during any shift;
 - (c) that all kitchen workers have been trained and instructed in the safe preparation of food, in line with the recommendations of the competent authority;
 - (d) proper and hygienic storage of fresh food, vegetables, fruits, meat, dry food and other ingredients at recommended temperatures;

- (e) adequate kitchen ventilation systems to remove excessive steam, heat, vapours, odours and smoke; and
 - (f) that proper fire extinguishers are made available and that all kitchen workers have been trained in their use.
6. All food and drink facilities should have washable non-slip floors and be kept clean and in a hygienic condition by the employer.
7. Further information about nutrition at work can be found in *Food at work: Workplace Solutions for Malnutrition, Obesity and Chronic Diseases* (ILO, 2005).

17.6. Childcare facilities

1. The competent authority should formulate and implement laws, regulations and policies to promote and encourage the provision of affordable day-care facilities and other supporting family or social services to enable parents to combine family obligations with work responsibilities.
2. In cases where childcare is provided by the employer, such facilities should be located away from areas used for storage of hazardous substances, wet and dry processing, loading and unloading, movement of heavy machinery, and other dangerous areas.
3. Childcare facilities should comply with building, fire-safety and other relevant standards established by the competent authority and must include, at a minimum:
 - (a) all hot surfaces must be insulated so that children cannot come in contact with them and fireplaces must be guarded;
 - (b) electrical outlets within reach of children must be provided with receptacle covers when not in use;
 - (c) medicines, vector controls or vermin poisons and other hazardous substances must be stored in a locked cabinet;
 - (d) the premises must be clean, well ventilated and well maintained at all times;
 - (e) outdoor play areas must be safe and secure and any open water or pits must be fenced or covered;
 - (f) potable drinking water must be available;
 - (g) toilet facilities must be clean, suitable for children and provided with hand-washing facilities;
 - (h) individual clean cribs, cots or mats and clean linens must be provided;
 - (i) the ratio of children per adult and the number of children in a group should be low and linked to the children's age;
 - (j) the personnel should be qualified and stable, which implies that their terms and conditions of employment should be sufficiently attractive;
 - (k) all childcare workers should be trained in first aid and emergency response procedures;
 - (l) parent and guardian information should be kept on file;
 - (m) children may only be released to an authorized parent, guardian or designated individual;

- (n) health records should be maintained for each child, including details of immunizations, medications, communicable diseases and evidence of neglect or unusual injuries; and
- (o) any instances of neglect or unusual injuries must be reported to the facility manager.

17.7. Living accommodation

1. Suitable living accommodation should be made available for the workers at textiles, clothing, leather and footwear factories which are remote from their homes, where adequate transportation between the factory and their homes or other suitable living accommodation is not available.
2. Where collective housing is provided for workers who are single or are separated from their families, the competent authority should establish housing standards that provide, as a minimum, for:
 - (a) a separate bed for each worker;
 - (b) a separate locker for keeping personal belongings;
 - (c) separate accommodation of the sexes;
 - (d) an adequate supply of potable water;
 - (e) adequate sanitary and washing facilities;
 - (f) adequate ventilation and, where appropriate, heating;
 - (g) canteens; and
 - (h) rest and recreation facilities.
3. The competent authority, if appropriate, should identify the agency or agencies responsible for providing such living accommodation and should specify the minimum standards for housing, including its construction material, fire safety, minimum size and layout of accommodation, cooking, washing, storage, water supply and sanitary facilities.
4. In cases where housing is provided by the employer, the accommodation should comply with minimum housing standards established by the competent authority in the light of local conditions. These should include, at a minimum:
 - (a) a separate bed for each worker;
 - (b) adequate headroom, providing full and free movement, of not less than 203 centimetres (6.7 feet);
 - (c) the minimum inside dimensions of a sleeping space should be at least 198 centimetres (6.5 feet) by 80 centimetres (2.6 feet);
 - (d) beds should not be arranged in tiers of more than two;
 - (e) bedding materials should be reasonably comfortable;
 - (f) bedding and bed-frame materials should be designed to deter vermin;
 - (g) separate accommodation of the sexes;
 - (h) adequate natural light during the daytime and adequate artificial light;
 - (i) a reading lamp for each bed;

- (j) adequate ventilation to ensure sufficient movement of air in all conditions of weather and climate;
 - (k) heating, where appropriate;
 - (l) adequate supply of safe potable water;
 - (m) adequate sanitary facilities;
 - (n) adequate drainage;
 - (o) adequate furniture for each worker to secure her or his belongings, such as a ventilated clothes locker that can be locked by the occupant to ensure privacy;
 - (p) common dining rooms, canteens or mess rooms, located away from the sleeping areas;
 - (q) appropriately situated and furnished laundry facilities;
 - (r) reasonable access to telephone or other modes of communications, with any charges for the use of these services being reasonable in amount; and
 - (s) rest and recreation rooms and health facilities, where not otherwise available in the community.
- 5.** In workers' sleeping rooms, the floor area should not be less than 7.5 square metres (81 square feet) in rooms accommodating two persons; 11.5 square metres (124 square feet) in rooms accommodating three persons; or 14.5 square metres (156 square feet) in rooms accommodating four persons. If a room accommodates more than four persons, the floor area should be at least 3.6 square metres (39 square feet) per person. Rooms should indicate the permitted number of occupants.
- 6.** As far as practicable, sleeping rooms should be arranged so that shifts are separated and no workers working during the day share a room with workers on night shifts.
- 7.** In cases where housing is provided by the employer, the premises should be inspected at regular intervals to ensure that the accommodation is clean, habitable and maintained in a good state of repair, and that smoke detection and fire alarm systems, emergency lighting, fire-extinguishing equipment and exit doors are operational. There should be at least two exit doors on each floor and on opposite sides of the building, and these should never be locked from the outside.
- 8.** Further information about workers' housing can be found in ILO Helpdesk Factsheet No. 6.

▶ 18. Waste and emissions management

18.1. Hazard description

1. The discharge of effluent, the disposal and transport of waste and the emission of smoke and chemicals from textiles, clothing, leather and footwear manufacturing is significant and can contain highly hazardous substances. When such discharges, disposal and emissions are poorly managed they contribute to climate change, pollute the environment and pose a severe threat to human health.
2. Climate change, environmental degradation and resource scarcity are in turn exacerbating existing and generating new OSH risks in the textiles, clothing, leather and footwear industries, including but not limited to extreme heat and air pollution.

18.2. Risk assessment

1. The competent authority should conduct assessments of existing, increased or new OSH risks resulting from climate change, resource scarcity or other risks related to human health and the environment, and should identify adequate prevention and protection measures to seek to ensure OSH.
2. The competent authority should assess and define appropriate legislation to ensure that textiles, clothing, leather and footwear factories take appropriate steps to mitigate adverse impacts on safety and health and, where applicable, the wider environment, throughout the life cycle of products and processes.
3. The competent authority should establish standards with regard to the discharge of effluent, the disposal and transport of waste and the emission of smoke and chemicals. Such standards should be based on sound scientific criteria and accepted international practice.
4. As mentioned in Chapter 9, section 9.3.1, paragraph 2, of this code, the competent authority should ensure that specific criteria are established for the disposal of hazardous chemicals and hazardous waste products, consistent with national laws and regulations, or other nationally and internationally recognized instruments (see section 18.7 below).
5. Employers should inform themselves about relevant standards, national laws and regulations and the recommendations of the competent authority. They should carry out a risk assessment to determine the measures required to eliminate or control the hazards and reduce the risks associated with emissions of smoke and chemicals, as well as with solid waste, effluent and hazardous waste.
6. As a part of this assessment, the employer should consider:
 - (a) workers and people living in the vicinity of the factory; and
 - (b) that some people may be more at risk than others, including older people, people with underlying medical conditions or disabilities and women of childbearing age, in particular those expecting or nursing a child.

18.3. Control measures

1. The competent authority should make available information on the prevention and reduction of emissions of smoke and chemicals, as well as solid waste, effluent and

hazardous wastes, and should provide additional support services with regard to OSH measures and the protection of public health in the vicinity of textiles, clothing, leather and footwear factories.

2. The competent authority should also regulate and incentivize factories to reduce, minimize and where possible eliminate emissions of smoke and chemicals, as well as the disposal and discharge of solid waste, effluent and hazardous waste, across the supply chain of products and production processes.
3. The employer should undertake to eliminate or reduce emissions of smoke and chemicals, as well as the disposal and discharge of solid waste, effluent and hazardous waste, through a combination of:
 - (a) reducing the consumption of fossil fuels and replacing these with cleaner energy sources;
 - (b) installing more resource-efficient machinery that can be repaired and maintained for longer and requires less energy and water;
 - (c) improving the management of materials and supplies and increasing the use of recycled materials;
 - (d) lowering the consumption of hazardous substances and replacing these with harmless materials and substances; and
 - (e) improving the management and recycling of water and waste.
4. The employer should dispose of hazardous wastes, both effluent and solid waste, in accordance with instructions guiding the hazardous chemicals and substances used or the safety practices applicable to hazardous materials and in compliance with national laws and regulations concerning chemicals and effluent discharge and treatment (see sections 18.6 and 18.7 below).

18.4. Emissions of smoke and chemicals

1. In accordance with national laws and regulation, the employer should develop and implement policies and procedures to eliminate or reduce the impacts of the emissions of smoke and chemicals. This includes but is not limited to:
 - (a) obtaining and maintaining required permits, registration and authorization for emissions of smoke and chemicals;
 - (b) conducting annual performance evaluations of ventilation, air pollution control and exhaust systems to ensure these are safe and effective;
 - (c) investigating and reporting air pollution control or exhaust system failures; and
 - (d) testing on an annual basis that emissions are within permitted limits.
2. The employer should inform, instruct and train workers on:
 - (a) sources of emissions of smoke and chemicals and the location of exhaust vents;
 - (b) the safe operation of ventilation, air pollution control and exhaust systems in place;
 - (c) appropriate response procedures in the event of apparent failure of ventilation or pollution control devices and systems; and
 - (d) the use of PPE in such an event.

3. The employer should provide workers who maintain and analyse the performance of pollution control devices and systems with training on the specific operating requirements and all necessary protocols, as well as emergency response measures.

18.5. Solid waste

1. The employer should properly measure, segregate, manage, transport and dispose of all solid waste, in accordance with national laws and regulations.
2. The employer should measure and continuously reduce solid waste and improve material efficiency and recycling through the development and implementation of policies, processes and procedures for:
 - (a) minimizing and safely managing solid waste;
 - (b) mapping all streams of solid waste according to the types and quantities of solid waste generated, recycled and disposed;
 - (c) segregating solid waste into reusable, recyclable and non-recyclable categories, using clean and dedicated containers for these;
 - (d) segregating and safely handling and storing hazardous solid waste in separate areas with impermeable surfaces and in safe and dedicated containers;
 - (e) selecting licensed and qualified waste-transporters, recyclers and disposal facilities, while verifying that they exercise responsible environmental management practices and refrain from open disposal on or in land or water or uncontrolled burning or emissions; and
 - (f) prohibiting onsite burning or disposal of solid waste.
3. The employer should provide workers whose work involves solid waste handling with induction training and regular training thereafter. Training topics should include:
 - (a) specific operational procedures for source reduction;
 - (b) safe solid waste handling, storage, documentation and disposal techniques and procedures;
 - (c) identifying hazardous waste and special procedures for the safe handling of such waste;
 - (d) identifying and preventing contamination of materials collected for recycling; and
 - (e) the use of PPE.

18.6. Effluent

1. The employer should minimize freshwater withdrawals and effluent, in compliance with national laws and regulations.
2. The employer should strive to be a good water steward by understanding and managing the factory's water use and effluent, as well as the associated risks for people living in the vicinity of the factory, and by promoting the continuous reduction and efficient use of water in the factory's operations.
3. In accordance with national laws and regulations, the employer should install or upgrade plant and equipment and develop policies and implement procedures for managing effluent in safe and environmentally sound ways. This includes:

- (a) obtaining all required discharge permits;
 - (b) posting permits and requirements in a central location in the effluent treatment plant;
 - (c) maintaining an inventory of effluent treatment equipment, including test results that demonstrate compliance with all applicable regulations, standards and permit requirements;
 - (d) sampling and testing effluent and sludge in accordance with national laws and regulations;
 - (e) developing a process for addressing non-compliance with established permits, including by analysing the root causes and developing a corrective action plan; and
 - (f) maintaining documentation of effluent and sludge tests for review by the competent authority upon request.
4. The employer should provide workers with basic freshwater conservation and effluent awareness-training as part of their induction training. This should include training on:
- (a) types of effluent, discharge points and sources;
 - (b) the consequences of uncontrolled releases to the environment; and
 - (c) the use of PPE.
5. Workers who are responsible for operating and maintaining effluent treatment plant and equipment must receive the same induction training outlined above, as well as additional training in:
- (a) the operation and maintenance of incoming freshwater treatment equipment, including freshwater recycling equipment;
 - (b) the operation and maintenance of biological effluent treatment systems, including collection of operational data;
 - (c) proper sampling techniques and procedures;
 - (d) troubleshooting and root-cause analysis to resolve and address excursions that result in effluent non-compliances; and
 - (e) development of corrective action plans to resolve process excursions and non-compliances; and
 - (f) the use of PPE.

18.7. Hazardous wastes

1. Hazardous waste containing chemicals or other hazardous substances should be disposed of according to procedures based on criteria established by the competent authority or laid down in standards, codes or guidelines that have been approved or recognized by the competent authority for the treatment and disposal of hazardous chemicals and hazardous waste products, with a view to ensuring the safety of workers. These criteria should be consistent with the protection of the general public and the environment.
2. The criteria established by the competent authority should be consistent with national or international regulations for the disposal and treatment of hazardous waste and should cover, where applicable:

- (a) *the method of identification of waste products.* Waste products should be identified as waste by their origins and also by their main components, where known. The main components should be determined from the history of the products. In cases of doubt about the degree of hazard, the waste should be classified as the highest hazard;
 - (b) *the handling of contaminated containers.* Empty containers that have not been cleansed of hazardous chemicals should be closed and stored to await disposal or reuse and treated as if they contained those hazardous chemicals. Empty containers should retain the identification, marking and labelling of their previous contents;
 - (c) *the identification, construction, nature, integrity and protection of waste containers.* Waste containers should be designed or chosen to provide protection to workers against the hazards identified in (a) and (b) above, taking into account the methods of work and disposal to be followed;
 - (d) *the effects on the working environment.* The discharge of effluent, the disposal and transport of waste and the emission of smoke and chemicals into the atmosphere should be undertaken in such a way as to prevent or minimize risks to workers, or should be in accordance with national laws and practice for the protection of the general public and the environment;
 - (e) *the demarcation of disposal areas.* Disposal areas and storage areas for waste products should be set aside. Sufficient space should be provided on site to prevent the presence of waste containers in the normal process and storage areas;
 - (f) *the provision, maintenance and use of PPE.* PPE should be provided against the hazards referred to in (a) and (b) above and in accordance with the method of work to be followed;
 - (g) *the method of disposal or treatment.* Where there are no on-site facilities to dispose of waste safely, hazardous waste products should be disposed of through a specialist contractor in accordance with national laws and practice. Where an employer disposes of waste (such as flammable solvent waste and residues) by burning, this should be in a plant or process designed to do this safely and following a clearly defined system of work.
3. Guidelines concerning controls in respect of the transboundary movement of hazardous wastes can be found in the UNEP Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

► Bibliography

The International Labour Conference has adopted a large number of international labour Conventions, Protocols and Recommendations directly concerned with OSH. The ILO has also developed many codes of practice, guidelines and technical publications applicable to textiles, clothing, leather and footwear. They represent a body of definitions, principles, obligations, duties and rights, as well as technical guidance that reflects the consensual views of the ILO's tripartite constituents from its 187 Member States on most aspects of OSH.

1. Relevant ILO Conventions, Protocols and Recommendations

1.1. Fundamental ILO Conventions and accompanying Recommendations

Freedom of association and collective bargaining

- (a) Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87); and
- (b) Right to Organise and Collective Bargaining Convention, 1949 (No. 98).

The elimination of forced labour

- (a) Forced Labour Convention, 1930 (No. 29) and its Protocol of 2014 and Forced Labour (Supplementary Measures) Recommendation, 2014 (No. 203); and
- (b) Abolition of Forced Labour Convention, 1957 (No. 105).

The abolition of child labour

- (a) Minimum Age Convention (No. 138) and Recommendation (No. 146), 1973; and
- (b) Worst Forms of Child Labour Convention (No. 182) and Recommendation (No. 190), 1999.

The elimination of discrimination

- (a) Equal Remuneration Convention (No. 100) and Recommendation (No. 90), 1951; and
- (b) Discrimination (Employment and Occupation) Convention (No. 111) and Recommendation (No. 111), 1958.

1.2. Occupational safety and health

- (a) Protection of Workers' Health Recommendation, 1953 (No. 97);
- (b) Welfare Facilities Recommendation, 1956 (No. 102);
- (c) Workers' Housing Recommendation, 1961 (No. 115);
- (d) Occupational Safety and Health Convention (No. 155) and Recommendation (No. 164), 1981, and Protocol of 2002 (recording and notification of occupational accidents and diseases) to the Convention;
- (e) Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985;

- (f) List of Occupational Diseases Recommendation, 2002 (No. 194) and *ILO List of Occupational Diseases (revised 2010)*; and
- (g) Promotional Framework for Occupational Safety and Health Convention (No. 187) and Recommendation (No. 197), 2006.

1.3. Protection against specific risks

- (a) Radiation Protection Convention (No. 115) and Recommendation (No. 114), 1960;
- (b) Guarding of Machinery Convention (No. 119) and Recommendation (No. 118), 1963;
- (c) Maximum Weight Convention (No. 127) and Recommendation (No. 128), 1967;
- (d) Occupational Cancer Convention (No. 139) and Recommendation (No. 147), 1974;
- (e) Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156), 1977;
- (f) Asbestos Convention (No. 162) and Recommendation (No. 172), 1986;
- (g) Chemicals Convention (No. 170) and Recommendation (No. 177), 1990; and
- (h) Prevention of Major Industrial Accidents Convention (No. 174) and Recommendation (No. 181), 1993.

1.4. Other standards

- (a) Hours of Work (Industry) Convention, 1919 (No. 1);
- (b) Weekly Rest (Industry) Convention, 1921 (No. 14);
- (c) Forty-Hour Week Convention, 1935 (No. 47);
- (d) Labour Inspection Convention (No. 81) and Recommendation (No. 81), 1947, and Protocol of 1995 to the Convention;
- (e) Night Work (Women) Convention (Revised), 1948 (No. 89) and its Protocol of 1990;
- (f) Social Security (Minimum Standards) Convention, 1952 (No. 102);
- (g) Reduction of Hours of Work Recommendation, 1962 (No. 116);
- (h) Employment Injury Benefits Convention, 1964 [Schedule I amended in 1980] (No. 121) and Employment Injury Benefits Recommendation, 1964 (No. 121)
- (i) Invalidity, Old-Age and Survivors' Benefits Convention (No. 128) and Recommendation (No. 131), 1967;
- (j) Medical Care and Sickness Benefits Convention (No. 130) and Recommendation (No. 134), 1969;
- (k) Holidays with Pay Convention (Revised), 1970 (No. 132);
- (l) Workers' Representatives Convention (No. 135) and Recommendation (No. 143), 1971;
- (m) Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144) and Tripartite Consultation (Activities of the International Labour Organisation) Recommendation, 1976 (No. 152);
- (n) Collective Bargaining Convention (No. 154) and Recommendation (No. 163), 1981;

- (o) Workers with Family Responsibilities Convention (No. 156) and Recommendation (No. 165), 1981;
- (p) Night Work Convention (No. 171) and Recommendation (No. 178), 1990;
- (q) Part-Time Work Convention (No. 175) and Recommendation (No. 182), 1994;
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- (s) Maternity Protection Convention (No. 183) and Recommendation (No. 191), 2000;
- (t) Employment Relationship Recommendation, 2006 (No. 198);
- (u) HIV and AIDS Recommendation, 2010 (No. 200);
- (v) Social Protection Floors Recommendation, 2012 (No. 202); and
- (w) Violence and Harassment Convention (No. 190) and Recommendation (No. 206), 2019.

2. Selected ILO codes of practice

- (a) *Protection of workers against noise and vibration in the working environment*, 1977. Third impression (with modifications), 1984;
- (b) *Occupational exposure to airborne substances harmful to health*, 1980;
- (c) *Safety in the use of asbestos*, 1984;
- (d) *Radiation protection of workers (ionising radiations)*, 1987
- (e) *Prevention of major industrial accidents*, 1991;
- (f) *Safety in the use of chemicals at work*, 1993;
- (g) *Management of alcohol- and drug-related issues in the workplace*, 1996;
- (h) *Recording and notification of occupational accidents and diseases*, 1996;
- (i) *Protection of workers' personal data*, 1997;
- (j) *Ambient factors in the workplace*, 2001;
- (k) *An ILO code of practice on HIV/AIDS and the world of work*, 2001;
- (l) *Safety and health in the non-ferrous metals industries*, 2003;
- (m) *Safety and health in the use of machinery*, 2013; and
- (n) *Safety and health in shipbuilding and ship repair* (2019).

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ILO

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 - . 2013. *Training Package on Workplace Risk Assessment and Management for Small and Medium-Sized Enterprises*.
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In addition to these publications, the Office consulted relevant laws, regulations, directives, guidelines and webpages of a number of ILO Member States concerning occupational safety and health for the preparation of this code.

► Appendix I

Workers' health surveillance (adapted from ILO *Technical and ethical guidelines for workers' health surveillance*, 1998)

1. General principles

1. Competent authorities should ensure that laws and regulations governing workers' health surveillance are properly applied.
2. Workers' health surveillance should be carried out in consultation with workers and/or their representatives:
 - (a) with the central purpose of the primary prevention of occupational and work-related injuries, ill health and diseases; and
 - (b) under controlled conditions within an organized framework, as may be prescribed by national laws and regulations and in accordance with the Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985 and the ILO *Technical and Ethical Guidelines for Workers' Health Surveillance* (1998).

2. Organization

1. The organization of workers' health surveillance at different levels (national, industry, enterprise) should take into account:
 - (a) the need for a thorough investigation of all work-related factors and the nature of the occupational hazards and risks in the workplace which may affect workers' health;
 - (b) the health requirements of the work and the health status of the working population;
 - (c) the relevant laws and regulations and the available resources;
 - (d) the awareness of workers and employers of the functions and purposes of such surveillance; and
 - (e) the fact that surveillance is not a substitute for monitoring and control of the working environment.
2. In accordance with the needs and available resources, workers' health surveillance should be carried out at the national, industry, enterprise and/or other appropriate levels. Provided that surveillance is carried out or supervised by qualified occupational health professionals, as prescribed by national laws and regulations, it can be undertaken by:
 - (a) occupational health services established in a variety of settings, for example within an enterprise or among enterprises;
 - (b) occupational health consultants;
 - (c) the occupational and/or public health facilities available in the community where the enterprise is located;
 - (d) social security institutions;
 - (e) worker-run centres;

- (f) contracted professional institutions or other bodies authorized by the competent authority; or
 - (g) a combination of any of the above.
3. A comprehensive system of workers' health surveillance should:
- (a) include individual and collective health assessments, occupational injury and disease recording and notification, sentinel event notification, surveys, investigations and inspections;
 - (b) comprise the collection of information from various sources, and analysis and evaluation with regard to quality and intended use; and
 - (c) determine action and follow-up, including:
 - (i) guidance on health policies and OSH programmes; and
 - (ii) early warning capabilities so that the competent authority, employers, workers and their representatives, occupational health professionals and research institutions can be alerted to existing or emerging OSH problems.

3. Assessment

1. Medical examinations and consultations, as the most commonly used means of health assessment of individual workers, either as part of screening programmes or on an as-needed basis, should serve the following purposes:
 - (a) the assessment of the health of workers in relation to hazards or risks, giving special attention to workers with specific needs for protection in relation to their health condition;
 - (b) detection of pre-clinical and clinical abnormalities at a point when intervention is beneficial to the health of the individual;
 - (c) prevention of further deterioration in workers' health;
 - (d) evaluation of the effectiveness of control measures in the workplace;
 - (e) reinforcement of safe methods of work and health maintenance; and
 - (f) assessment of fitness for a particular type of work, with due regard to the adaptation of the workplace to the worker, taking into account individual susceptibility.
2. Pre-assignment medical examinations, where appropriate, carried out before or shortly after employment or assignment, should:
 - (a) collect information which serves as a baseline for future health surveillance; and
 - (b) be adapted to the type of work, vocational fitness criteria and workplace hazards.
3. During employment, medical examinations should take place at periodic intervals, as prescribed by national laws and regulations, and be appropriate to the occupational risks of the enterprise. These examinations should also be repeated:
 - (a) on resumption of work after a prolonged absence for health reasons; and
 - (b) at the request of the worker, for example, in the case of a change of work and, in particular, a change of work for health reasons.
4. Where persons have been exposed to hazards and, as a consequence, there is a significant risk to their health in the long term, suitable arrangements should be made for post-

employment medical surveillance for the purposes of ensuring the early diagnosis and treatment of such diseases.

5. Biological tests and other investigations should be prescribed by national laws and regulations. They should be subject to the worker's informed consent and performed according to the highest professional standards and least possible risk. These tests and investigations should not introduce unnecessary new hazards to the workers.
6. Genetic screening should be prohibited or limited to cases explicitly authorized by national legislation, in accordance with the ILO code of practice on protection of workers' personal data (1997).

4. Collection, processing, communication and use of data

1. Workers' personal medical data should:
 - (a) be collected and stored in conformity with medical confidentiality, in accordance with the ILO code of practice on protection of workers' personal data (1997); and
 - (b) be used to protect the health of workers (physical, mental and social well-being) individually and collectively, in accordance with the ILO *Technical and ethical guidelines for workers' health surveillance*.
2. The results and records of workers' health surveillance should:
 - (a) be clearly explained by professional health personnel to the workers concerned or to persons of their choice;
 - (b) not be used for unwarranted discrimination, for which there should be recourse in national law and practice;
 - (c) be made available, where requested by the competent authority, to any other party agreed by both employers and workers, to prepare appropriate health statistics and epidemiological studies, provided anonymity is maintained, where this may aid in the recognition and control of occupational injuries and diseases; and
 - (d) be kept for the time and under the conditions prescribed by national laws and regulations, with appropriate arrangements to ensure that workers' health surveillance records are securely maintained in the case of establishments that have closed down.

▶ Appendix II

Surveillance of the working environment (based on the Occupational Health Services Recommendation, 1985 (No. 171))

1. The surveillance of the working environment should include:
 - (a) identification and evaluation of the hazards and risks which may affect workers' safety and health;
 - (b) assessment of conditions of occupational hygiene and factors in the organization of work which may give rise to hazards or risks to the safety and health of workers;
 - (c) assessment of collective and personal protective equipment;
 - (d) assessment where appropriate of exposure of workers to hazardous agents by valid and generally accepted monitoring methods; and
 - (e) assessment of control systems designed to eliminate or reduce exposure.
2. Such surveillance should be carried out in liaison with the other technical services of the undertaking and in cooperation with the workers concerned and their representatives in the undertaking and/or the safety and health committee, where they exist.
3. In accordance with national law and practice, data resulting from the surveillance of the working environment should be recorded in an appropriate manner and be available to the employer, the workers and their representatives in the undertaking concerned or the safety and health committee, where they exist.
4. These data should be used on a confidential basis and solely to provide guidance and advice on measures to improve the working environment and the safety and health of workers.
5. The competent authority should have access to these data. They may only be communicated to others with the agreement of the employer and the workers or their representatives in the undertaking or the safety and health committee, where they exist.
6. The surveillance of the working environment should entail such visits by the personnel providing occupational health services as may be necessary to examine factors in the working environment which may affect workers' health, environmental health conditions at the workplace and working conditions.
7. Without prejudice to the responsibility of each employer for the safety and health of workers in their employment, and with due regard to the necessity for workers to participate in occupational safety and health (OSH) matters, personnel providing occupational health services should have such of the following functions as are adequate and appropriate to the occupational risks of the undertaking:
 - (a) carrying out monitoring of workers' exposure to hazards and risks, when necessary;
 - (b) advising on the possible impact on the workers' health of the use of technologies;
 - (c) participating in and advising on the selection of the equipment necessary for the personal protection of the workers against occupational hazards;
 - (d) collaborating in job analysis and in the study of organization and methods of work with a view to securing a better adaptation of work to the workers;

- (e) participating in the analysis of occupational accidents and occupational diseases and in accident prevention programmes; and
 - (f) supervising sanitary installations and other facilities for the workers, such as drinking water, canteens and living accommodation, when provided by the employer.
8. Personnel providing occupational health services should, after informing the employer, workers and their representatives, where appropriate:
- (a) have free access to all workplaces, and to the installations, the undertaking provides for workers;
 - (b) have access to information concerning the processes, performance standards, products, materials and substances used, or the use of which is envisaged, subject to their preserving the confidentiality of any secret information they may learn which does not affect the safety and health of workers; and
 - (c) be able to take, for the purpose of analysis, samples of products, materials and substances used or handled.
9. Personnel providing occupational health services should be consulted concerning proposed modifications in work processes or in conditions of work liable to have an effect on the safety or health of workers.