

## **Legislative Diploma 48/73 of 05 June**

### **Health and Safety at Work in Industrial Establishments Regulation**

The following is an abbreviated summary of the legislation and does not constitute a full or an official translation. This summary does not deal in depth with certain technical areas of the legislation. Any reader wanting further information regarding specific technical requirements is advised to consult the original legislation. This summary focuses on specific areas which have been raised by Labour Department representatives at ACIS member companies, and others which are likely to be considered generally applicable, such as building design and facilities and safety equipment.

#### *Article 2*

The Regulation applies to all industrial establishments whatever their size, number of workers or type of production.<sup>1</sup>

#### *Article 3*

Employers are responsible for conditions in the workplace and must ensure protection of workers against accidents or potential threats to their health in the workplace. The employer is responsible for ensuring that workers know about the risks in the workplace, precautions, the meaning of safety signs, use of equipment, ways of safe working and operation of equipment, personal safety and the importance of their health and of having regular medical checkups, and the health and safety rules specific to that particular workplace.

#### *Article 4*

Workers are required to follow the health and safety rules established for their workplace and not to alter, move or damage any health and safety equipment. Workers must draw the employer's attention to any potential dangers to health or safety which they may notice.

#### *Articles 5 – 8*

These deal with the construction and location of workplaces.

#### *Article 9*

Workplaces must be at least 3m from the floor to the ceiling, or lowest part of the roof, where no ceiling is installed. Variance of 0.2m is permitted.

In the case of boilers, ovens and kilns or any equipment where maintenance or operation takes place on top of the equipment, a distance of at least 2m between the top of the equipment and the roof or covering is required.

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<sup>1</sup> The regulation is applicable to industrial establishments as defined by Legislative Diploma 3057 of 12 December 1970

The workplace must permit a space of 2m<sup>2</sup> per worker, with a variance of up to 0.2m<sup>2</sup>. This space does not include space occupied by machines, equipment or raw material or walkways.

The maximum number of those employed in a workplace must be based on a calculation of 11.5m<sup>3</sup> per person, with a variance of 1m<sup>3</sup>. When calculating the volume of air in this respect, no more than 3m of height may be used and movable objects do not need to be factored into the calculation.

Other surface areas may be used when the work and ventilation so requires.

#### *Article 10*

The walls in the workplace must be pale coloured and not bright or shiny unless another colour is required based on the type of work undertaken.

Where necessary walls must have an impermeable covering up to at least 1.5m in height.

#### *Article 11*

Walkways, corridors and exits must be at least 1.2m wide, when the number of workers likely to use them does not exceed 50.

Interior walkways and corridors as well as exits must be sufficient to permit the rapid evacuation of the building if necessary. Proximity and number of exits must be increased where there is danger of fire or explosion.

The maximum distance to an exit must not exceed 45m and there should be at least two exits. Where danger of fire, explosion or intoxication exists there must be at least two exits situated on opposite sides of the building from each other.

Doors must remain open during working hours.

The distance between machines or pieces of equipment must be sufficient to allow workers to work without risk, and must never be less than 0.8m, counted from the outside or the longest reach of a movable part of each piece of equipment.

Around boilers, ovens or kilns the space should be at least 1.5m.

#### *Article 12*

The floor must not be covered by equipment, raw materials or finished goods in such a way as to present a risk to workers.

If such risk cannot be avoided the obstruction must be clearly signalled.

Clear space must be maintained around each machine or piece of equipment to allow operation, repair and maintenance as necessary.

#### *Article 13*

Openings in floors or walkways must be covered with strong material or surrounded by a guard rail at least 0.9m high and no more than 0.15m from the floor. Openings must be clearly signalled.

Openings in walls, steps and windows must be duly signalled and protected. Openings must be sufficient to permit a fireman's ladder to get through.

External doors must permit rapid exit in case of evacuation, and must open outwards (except in public areas) and be easy to open from the inside.

Fire escape stairs and emergency exits must be protected by fire safety doors, these being doors which resist fire for at least one and a half hours.

#### Article 14

The width of stairs must be in proportion to the number of likely users but never less than 1.2m (occasionally where there are very few workers a width of 0.9m may be permitted). Banisters and handrails must be set at, at least 0.9m.

Where stairways do not lead directly to the outside, a fire-resistant passage must exist to enable those being evacuated by stairway to exit the building safely.

Lifts and elevators must obey their own specific safety regulation and must not be used as an emergency exit.

Ramps to be used by people must not have an incline of more than 10% and must be protected by handrails as stairways are.

Steps, ladders or stairs which lead to service platforms must be at least 0.6m wide and have an incline of less than 60 degrees, the steps must be no more than 0.15m apart and there must be handrails.

Fixed ladders must be installed in such a way that the top of them is at least 0.75m above the floor that they lead to. There must be a space of at least 0.15m between the ladder and the next closest object behind it and of 0.4m on either side. Fixed ladders more than 9m long must have a rest platform with a surface area of at least 2.5m every 9m or fraction thereof.

#### Article 15

Deals with flooring and floor surfaces

#### Article 16

Workplaces and walkways must be protected against falling or flying objects.

#### Article 17

Underground work is not permitted except in special circumstances where sufficient ventilation, lighting and protection against humidity are provided.

#### Article 18

Public areas must be flat and covered where possible. Vehicles and pedestrian traffic must enter through different entrances and pedestrian entrances must be sufficiently large to allow movement of people at peak times, and must also be well away from vehicle access. All areas must be clearly signalled using well-placed signs.

#### Article 19

In the workplace and in transit areas there must be sufficient light, either provided by natural or artificial sources or a mixture, though wherever possible natural light should be used.

Light must be intensified in dangerous areas such as dangerous machines, stairs and emergency exits.

#### Article 20

Natural light must be provided in such a way as to prevent shadows, strong reflections and contrasts.

Surfaces designed to allow the entry of light must be clean.

Walls and ceilings must be light coloured and where possible smooth to prevent diffusion of light.

Windows, apertures and skylights must not allow direct sunlight to fall onto the workplace, where necessary blinds or curtains should be used.

#### *Article 21*

Where artificial light is used this must be electric.

Light should be provided at uniform intensity and not allow for shadows, contrasts and reflections.

Where additional illumination is required this should be a combination of the standard lighting with additional lighting in that location.

Artificial lights should be well maintained.

Artificial lights must be safe and not present risks of fire or explosion.

#### *Article 22*

Where large numbers of people are in one workplace a system of security lighting must be established on main stairways, exits and access ways. Such systems must have an independent power source and come on automatically.

In cases where fire may prevent the use of electric light alternative methods of illuminating stairways and exits must be used.

#### *Article 23*

Workplaces must be adequately ventilated by natural ventilation. Artificial ventilation may be used to supplement when conditions so require.

In closed working environments the average air circulation of fresh pure air must be at least 30-50m<sup>3</sup> per worker per hour except where a complete circulation of air takes place six times per hour for sedentary workers and ten times per hour for those involved in physical work.

The workplace must have sufficient doors and windows to allow for ventilation.

Where artificial ventilation is used the intakes and openings from which air is produced must be located so as not to cause discomfort.

#### *Article 24*

All gases, vapours, fumes, and dust produced as part of the industrial operation or which result from changes to the environment must be captured, where possible on production, and eliminated in order to avoid atmospheric pollution both in the workplace and elsewhere.

Chimneys must be at least 0.5m higher than the highest part of any roof within a 50m radius and must be easily cleaned.

Air circulation in closed working areas must ensure that the air circulated is clean and does not contain fumes and must not exceed 15m/minute at normal temperature and 45m/minute in high temperatures.

Chimneys which could cause dirt or other damage to surrounding buildings must be managed so as to avoid such dirt or damage.

### *Article 25*

Temperatures and humidity in the workplace must be maintained at levels which do not prejudice the health of workers.

Where this is not possible, individual workers must be provided with the means to protect themselves against, or to reduce the effects of temperature and humidity during working hours.

Where workers are exposed to extremely high or low temperatures transit chambers must be made available to enable them to readjust to normal outside air temperature.

Hot water pipes or other heat sources must be insulated to reduce or prevent their effect on the workplace.

Fire and heat resistant protection must be provided wherever necessary.

### *Article 26*

Those who work outside must be protected against the elements and particularly against excessive exposure to the sun.

### *Article 27*

Workers must be protected against emissions, vibrations and other potential impacts from the equipment with which they work. This includes isolation of equipment where necessary and workers must have adequate protective equipment.

### *Articles 28-30*

Workers must be adequately protected from all types of radiation be it infrared, ultraviolet or nuclear.<sup>2</sup>

### *Article 31*

Industrial establishments must do all possible to prevent or reduce the risk of fire.

Installations with significant fire risk must be constructed in such a way as to allow a fire to be isolated, preferably automatically.

### *Article 32*

Adequate and well-maintained fire-fighting equipment must be held on site and employees must be trained in its use.

Equipment must be regularly tested.

### *Article 33*

Establishments with significant fire risk must have an automatic alarm or automatic alarm and extinguisher system.

When manual alarms are used these must be on each floor and arranged in such a way that it is not necessary to move more than 30m to activate one.

Fire alarms must have a distinct sound which is loud enough to be heard over the noise of all equipment in the installation, and must be operated by an independent power source.

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<sup>2</sup> Translator's note – the legislation provides specific criteria for each type of radiation and the types of protection required. Any type of work which results in exposure to infrared, ultraviolet or other types of radiation may not be undertaken by specific categories of workers such as women under 21, men under 18 etc. Any employer concerned about the specific requirements should consult the legislation directly

#### *Article 34*

Exits must be of sufficient number to allow everyone in the building to leave at the same time without difficulty.

Emergency exits must be at least 1.2m wide and must not open into the workplace.

Where exits themselves cannot be immediately accessed internal corridors at least 1.2m wide must be available and these must not be obstructed. Such corridors must connect directly to an exit.

In buildings of several floors external fire-proof stairs must be provided.

#### *Article 35*

There must be water available in sufficient quantity and at sufficient pressure to put out a fire.

Where possible this should be supported by the public water system, which should provide elevated storage tanks for establishments with risk of fire.

Where sprinklers or similar are used, the water supply taps must remain open. Free space of at least 0.6m must be available around such systems to allow them to work effectively.

Automatic alerts must be available to draw attention to any valve that is not set as it should be.

#### *Article 36*

All industrial establishments must have sufficient portable fire extinguishers, taking into account the type of work undertaken and the likelihood of fire.

Extinguishers must be visible, easily accessible, signalled, and never in high-traffic corridors or on stairways.

Along with extinguishers there must be buckets of dry sand, the buckets must be painted red with the letters SI on them in black, or where necessary larger receptacles of dry sand with shovels.

#### *Articles 37-45*

These articles deal with the management of explosive and flammable substances (either as products or by-products of the industrial process or as inputs), which are dealt with under specific regulations, general guidelines being provided here.

#### *Articles 46-49*

These articles deal with machine safety. Moving parts must be protected and machine surfaces must be smooth with screw-heads and other joining devices recessed. Belts, blades and other rotating pieces must be covered or shielded by an appropriate guard mechanism. Machines operating at high speed which run the risk of rupture must be covered or have guards which prevent projectiles.

#### *Article 50*

Machines must have the appropriate covers and guards. These must be designed in such a way as to not inconvenience the operator, but which prevent access to dangerous parts of the machine. Where possible guards and protectors should function automatically, and should permit the servicing, lubrication and maintenance of the machine.

They should be made of appropriate material and attached strongly either to the machine itself or to the walls or floor.

Guards or protectors must remain in place and be used appropriately whenever the machine is in operation.

#### Article 51

Protectors or guards may only be removed directly preceding repair or maintenance work on the machine which necessitates their removal and must be replaced immediately that work is completed.

#### Article 52

Cleaning, lubrication and maintenance must not be undertaken while machines are working unless this is a specific technical requirement, in which case relevant safety measures must be taken. This prohibition must be clearly signalled and the sign must be visible.

#### Article 53

Breakdowns or problems with a machine or its safety equipment must be immediately notified and the machine shut down or taken out of service. A clear sign indicating that the machine must not be used must be prominently displayed until such time as the machine has been repaired.

#### Articles 54-57

These articles deal with the installation, repair and maintenance of engines and motors.

#### Articles 59-62

These articles deal with lifting equipment including hoists and cranes. They provide clear requirements in terms of capacity, signage, testing and use.

#### Article 63-68

These articles deal with protection of machines in operating areas and go into further depth about reduction of risk, use of guards and protective covers, machine apertures, projectiles, use of transparent protectors, and pedal operation of equipment.

#### Articles 69-76

These articles deal with lifting equipment in greater depth.<sup>3</sup> The articles include requirements for the construction and maintenance of lifting equipment, mechanisms, electrical equipment, maximum cargoes, installation of equipment, signalling to be used for manoeuvring equipment, inspection and cargo maintenance.

#### Articles 77-84

These articles deal with pneumatic, gravity, belt, chain, roller and screw-driven transport systems, including aspects of construction and installation, access platforms, flooring and

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<sup>3</sup> With the exception of elevators which are dealt with under separate legislation

surfaces, protection, control and operation, loading and off-loading, warning signals and maintenance.

#### *Articles 85-88*

These articles deal with motorized and manual carts and wagons and include construction, road and rail tracks within industrial sites, signalling, manoeuvring, loading and off-loading, and maintenance.

#### *Article 89*

Piping and plumbing must be strongly attached and well-aligned and must include the necessary valves and access points to ensure the safe transport of liquids or gases. Transport systems must allow for the expansion and contraction of transported substances. Pipes, taps, valves and other equipment must be resistant to corrosion by the substances passing through them. Emergency taps and valves must be clearly signalled including indicating in which position they are closed or open. Automatics taps and valves must have a manual bypass system. Purge valves and outlets must be provided at regular points to prevent build-up of condensation, oils or any other waste substance. Tubes and pipes transporting steam, gas or liquid at more than 100 degrees centigrade must have thermal insulation. Where possible pipes used to transport flammable substances should be underground. Where corrosive substances are transported under pressure valves and junctions must be protected by reinforcing or metal panels.

#### *Article 90*

All tubes, pipes, valves and taps must be clearly marked and colour coded so that they can easily be tracked and their contents identified. Markings must follow conventional norms. Where pipes are painted they must be painted for their entire length or for at least 0.20-0.25m on either side of valves, pumps and taps.

#### *Article 91*

Systems for the transport of liquids and gases must be regularly inspected and maintained in good condition.

#### *Article 92*

Wherever possible materials should be lifted in order to move them. Those involved in the transport of materials must be trained in the safe lifting and transport of materials. Where heavy materials must be lifted by a team of workers the operation must be supervised to ensure that the operation is unified and undertaken safely.

When offloading items which are likely to roll or slide using an inclined ramp, straps and ropes must be used to protect the workers on the lower side of the items being offloaded.

Where rollers are used, bars or levers must be used to move the rollers.

Workers must have the appropriate safety equipment (as described in Chapter IX of this regulation).<sup>4</sup>

#### *Article 93*

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<sup>4</sup> Translator's note – articles 149 forward

Materials must be stacked safely, and special precautions must be taken when the nature of the materials so requires.

Materials must be stacked on stable bases and care must be taken not to exceed the maximum weight for the surface on which they are stacked. Materials must not be stacked against internal walls or other surfaces not designed to take the lateral weight of the stack.

Stacks must not be so high as to be unstable.

Stacking of materials must not impede the entry of natural or artificial light, the operation of machines, access to other parts of the installation, entrances, exits and passages and fire-fighting equipment.

#### *Article 94*

Dry granular goods should wherever possible be stored in silos allowing their discharge from the base of said silo. Silos must be fire resistant and ventilated. Operation and maintenance of silos must be carried out safely and with due care. Any worker who enters a silo must have a safety harness attached to the outside of the silo and must be watched at all times by a second worker outside the silo. Where necessary the worker in the silo must have a mask or breathing apparatus.

No worker may enter a silo while it is being filled or discharged, or when precautions have not been taken to ensure that operations do not resume while the worker is in the silo.

#### *Article 95*

Storage of flammable and combustible liquids in reserves must be duly authorized by the relevant authority. Any liquid with a combustion point less than 100 degrees centigrade (using an Abel measure) is considered to be within this classification. The article further classifies different types of liquid according to their combustion point and each is to be stored in a specific manner, broadly outlined here.

#### *Article 96*

Tanks, reservoirs and other liquid storage containers which are less than 0.9m above ground or above the working area must be properly covered or protected by a wall or guard rail. Where the storage area is less than 1m deep, the liquids therein are not dangerous and other protection is in place then covers or walls are not required.

Liquid storage facilities must have appropriate discharge systems to ensure that they can be completely emptied into a suitable place without occasioning liquid to spill onto the floor or work area.

Walkways should not pass above liquid storage areas unless completely unavoidable, for example to reach controls for the storage area itself.

Service ways around liquid storage facilities must be kept clean and dry and must be at least 0.45m wide and have guard rails on both sides.

Above-ground liquid storage facilities which contain toxic, corrosive or high temperature liquids must have drainage systems which allow them to be fully drained into a secondary storage area in case of a rupture of the original facility, and must also have drainage to facilities outside the building.

*Article 97*

This article deals with ovens and kilns.

*Article 98-99*

These articles deal with refrigeration equipment and installations.

*Article 100*

This article deals with boilers and steam pressure units.

*Article 101*

This article deals with electrical installations.

*Articles 102-105*

These articles deal with soldering, cutting and welding.

*Articles 106-107*

These articles deal with the use of hand and power tools.

*Articles 108-111*

These articles deal with general safety procedures when undertaking repair and maintenance work.

*Article 112*

Wherever possible dangerous substances should be substituted for those which are not dangerous. Dangerous substances are those which are at high temperature, explosive, flammable, corrosive, toxic, asphyxiants, irritants or are infectious.

*Article 113*

Operations which present risk should be undertaken by the minimum number of employees possible, taking adequate precautions, in suitable locations in order to avoid the workers having contact with the dangerous substances, and to avoid any gases, dust, fumes or vapour from the dangerous substances reaching the surrounding area.

In cases where it is not possible to use closed equipment or containers, any gas, dust, fumes or vapours from the dangerous substance must be captured at the point at which they are produced and the surrounding area must be well-ventilated.

Where necessary workers must have appropriate safety equipment.

*Article 114*

The air quality in industrial areas must be analysed periodically to ensure that it is within the permissible limits with regard to concentration of dangerous substances.<sup>5</sup> Wherever possible automatic indicators and measuring systems should be used.

*Article 115*

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<sup>5</sup> Translator's note – the scale of acceptable limits is not provided in this legislation

Receptacles which contain dangerous substances must be clearly marked using conventional signs to indicate how they should be handled, the level of danger they pose and their contents.

#### *Article 116*

Residues resulting from the use of dangerous substances, or dangerous waste from the production process must be removed as regularly as required, to sites where they do not constitute a risk, and appropriate means must be used to carry out such operations. Sites where dangerous substances are used, handled and stored must allow for the removal of any substances which may build up there.

#### *Article 117*

In areas where explosive or flammable substances are manufactured, handled or used, or where gases, vapours or dust from such substances may occur any equipment, machinery or indeed any part of the building in which such activity takes place must not be liable to heat up or to cause sparks.

Safety areas must be established around such places, and boilers, ovens, kilns and other sources of heat or flame must not be situated within the safety area.

Access doors to areas containing explosive or flammable substances must close automatically and must be resistant to fire, and to explosion if the walls are similarly resistant. The floors or walls of such areas must have conveniently situated explosion valves, which could include windows or doors which open outwards with slight pressure. These should be situated in places where their sudden opening would not cause damage. Lubrication of machines and equipment which are in contact with dangerous substances must only be carried out using lubricants which will not react with the dangerous substances.

#### *Article 118*

The flooring of areas referred to in article 117 must be impermeable, non-flammable, and made of material which does not cause sparks, and must have sufficient drainage to allow the removal of water used to extinguish fires.

#### *Article 119*

Sites where flammable liquids are manufactured, handled or used must be isolated to prevent overflow and suitable precautions must be taken to manage spills.

#### *Article 120*

Places where flammable or explosive substances are manufactured, handled or used must have at least two emergency exits, free of obstruction and with doors which open outwards.

#### *Article 121*

Places where flammable or explosive substances are manufactured, handled or used must follow the regulations in force with respect to electrical systems.<sup>6</sup>

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<sup>6</sup> Translator's note – the relevant regulations are not provided in the legislation

*Article 122*

Smoking, the use of naked flame, matches or other incandescent items or other substances which could result in fire or explosion must not be used in areas where dangerous substances are manufactured, handled, used or stored.

*Article 123*

Walls and metallic objects including machines and equipment in areas where dangerous substances are manufactured, handled, used or stored must be suitably earthed to avoid a build up of static electricity.

*Article 124*

In such sites workers must not use hobnailed or steel toe-capped footwear or other clothing which could cause sparks.

*Article 125*

Such sites must have automatic and sensitive fire detection systems.

*Article 126*

Such sites must have the necessary fire fighting equipment as recommended by the relevant authorities, including where necessary automatic extinguisher systems.

*Article 127*

Equipment or machinery which releases or results in the build up of flammable or explosive gases, vapours or dust must be installed in such a way as to allow the harmless release of such substances or to contain and suffocate any fire or explosion which might take place. Appropriate fire fighting equipment and emergency evacuation routes must be available near such equipment.

*Articles 128-129*

These articles deal with the transfer of solvents and flammable liquids from one container to another and methods of dealing with dangerous mixtures of gases.

*Article 130*

Ventilation and extraction systems used for dangerous substances must have explosion valves outside of the work area, must be suitably earthed against static electricity and must lead to an appropriate disposal area.

*Articles 131-140*

These articles deal with the management of corrosive substances, substances at high temperature, and toxic, asphyxiant, irritant and infectious substances. They include provisions for the protection of buildings and installations, handling and transport, and spills as well as for the isolation of sites, types of flooring, cleaning of sites and equipment, access to areas containing dangerous gases, vapours or dust. These articles also require that those working in areas where they may be exposed to toxic, irritant or infectious substances must be provided with appropriate clothing and equipment which

must be sterilized or cleaned as appropriate at least once per week. Such protective clothing must be removed before meals and remain on site at the end of the working day, stored in a suitable place.

#### *Article 141*

Workers must have easy access to sufficient quantities of potable water.

Water must not be provided in buckets, barrels or other containers which require the immersion of a receptacle to remove the water for drinking. The water provided must be from a source approved by the relevant authority and must be within safe chemical and biological limits. It must be purified if necessary. Drinking water must be used hygienically, collective drinking cups are prohibited. A drinking fountain must be available for every fifty workers.

Where other water sources exist in an industrial establishment these must be clearly signalled as being “not drinking water” if this is the case.

In cases where workers work in intense heat the employer must provide salt cakes or salted water.

#### *Article 142*

Workplaces must be maintained in a clean and hygienic condition. Walls, ceilings, windows and glass surfaces must be clean and well-maintained. Floors, walls and ceilings must be of washable material, smooth, without areas where dust and dirt can accumulate, preferably painted in a light colour, impermeable and protected against damp. The corners formed by walls touching the ceiling should preferably be rounded.

Flooring in workshops and industrial areas should be kept clean, dry and not slippery, and have a maximum incline of 1%. If it is not possible to maintain floors in this condition, effective drainage must be used or walkways and platforms of timber or other water resistant, poor heat-conducting material must be used, or other methods found to ensure workers can work easily.

Workshops must be cleaned as often as is necessary. Cleaning should take place during periods between work wherever possible, to avoid dust. Where cleaning must take place during working hours, it should be done using suction equipment and in a manner which prevents pollution of the working environment. Compressed air must not be used to clean workplaces.

#### *Article 143*

Receptacles for waste, residue and rubbish must have sufficient capacity, and be maintained in hygienic conditions. They must be easy to clean and disinfect when required. Waste, residues and rubbish must be removed from the workplace in such a way as to not endanger health. Waste removal must take place at least once per day and wherever possible outside working hours.

Drainage channels for the removal of water residues must be maintained in good condition with hydraulic siphons to prevent smells.

The removal of hazardous waste must be undertaken based on the requirements laid out in this and other relevant legislation.

#### *Article 144*

Workplaces must be maintained free of rodents and insects wherever possible.

#### *Article 145*

Sedentary workers must have suitable, comfortable chairs which can be adjusted to the height of the person and to take into account the type of work they do.

Where cupboards or tool chests are on top of benches or tables, they must be situated so that the worker can easily reach any tool from his workplace.

#### *Article 146*

Sanitary installations must:

- Be separated by sex;
- Not lead directly off workplaces but must be easily accessible by covered passageway;
- Provide running water and be connected to the drainage network or to a septic tank;
- Be lit and ventilated;
- Have smooth, impermeable, durable, drained flooring inclined for effective drainage;
- Have light-coloured walls which must either be tiled or covered with impermeable material to a height of at least 1.5m;

The following must be available:

- A fixed hand basin for each group of 20 workers or fraction thereof that finish work at the same time, and if the total number of workers is above 100, a hand basin for each additional 30 workers;
- A shower for each group of 10 workers or fraction thereof that finish work at the same time, if they work in intense heat, with toxic, irritant or infectious substances, with dust or in dirty conditions;
- A toilet for each group of 25 male workers working simultaneously;
- A urinal for each group of 25 male workers working simultaneously;
- A toilet for each group of 15 female workers working simultaneously;

The number of hand basins and showers mentioned above is calculated per sex, not per total number of workers.

Bathrooms must have the following minimum conditions:

- Non-irritant soap, collective towels must not be used;
- Where communal hand basins are used, a space of 0.6m must be provided for each basin, with separate taps and preferably operated using a pedal;
- Shower cubicles must be in an appropriate location away from the toilets, and must have a dressing area with a bench and place to hang clothes, must provide privacy and must be clean, hygienic and well-maintained;
- Toilets must be in a separate place and must have an outer area for urinals and hand basins;
- Toilets must be separated by walls of at least 1.8m high, which cannot be more than 0.2m from the floor. Toilets must be clean, hygienic and well-maintained and those for women must have a bucket with a lid;
- Urinals must provide a space of 0.6m per person.

### *Article 147*

Dressing areas must be separated by sex and be well lit and ventilated. They should lead to showers and hand basins and should contain sufficient individual cupboards, benches or chairs.

In establishments employing more than 25 people dressing and shower rooms, and hand basins must occupy an area of no less than 1m<sup>2</sup> per worker.

Individual cupboards must be lockable and have ventilation in the top and bottom of the doors.

Workers working with toxic, irritant or infectious substances must be provided two separate cupboards to store work clothes and non-work clothes.

Wherever possible there should be a place to store wet clothes.

Dressing rooms and cupboards must be maintained in hygienic conditions.

### *Article 148*

In workplaces with more than 30 workers a dining area must be provided and workers are not permitted to dine in a different place.

The dining area must:

- Provide 1m<sup>2</sup> of space per worker for one third of the total number of workers on a given shift;
- Have a waterproof floor with a cement layer at least 0.1m thick covered in ceramic, plastic or other waterproof washable material;
- Have a ceiling of concrete, plaster, timber or other suitable material;
- Be covered with non-flammable, non-heat conducting material,
- Have a smooth, washable floor, painted walls (preferably painted with a light colour), and windows with mosquito netting where necessary;
- Be well illuminated and ventilated;
- Have potable water provided either in individual cups or from drinking fountains, which must not be attached to hand basins. Collective cups must not be used.
- Have sufficient hand basins as determined by the health and safety authority;
- Have smooth-topped tables with waterproof covering, and benches or chairs, all of which must be kept clean;
- Have a kitchen, in the case of establishments where meals are prepared on the premises, or a suitable location with a stove or oven in establishments where food is reheated.

The dining area must be in a suitable location, not directly linked to the workplace, toilets or to dangerous or insalubrious areas.

Workers must not eat in the workshop or other industrial areas and must not enter the dining area until they have removed dirty clothes or clothes impregnated with toxic, irritant or infectious substances.

In workplaces with more than 50 workers or those where workers are allowed to have meals even though a dining area is not legally required, conditions provided must be those sufficient for the comfort of the workers.

Comfort is understood to mean: suitable location; washable floor; cleanliness; good ventilation; tables and seats for the number of workers; hand basins available; drinking water; stove or oven for warming up food.

In exceptional circumstances the relevant authority may opt to dispense with some or all of the provisions of this article.

The use of the dining area, even temporarily, for storage or any other industrial purpose is forbidden.

#### *Article 149*

In addition to safety measures, and wherever the technical means to completely protect workers is not available, appropriate health and safety equipment must be provided. Such equipment must be well-maintained.

#### *Article 150*

Work uniforms or workplace clothing must take into account any risks which the worker may be exposed to, must fit well, must not impede movement and must not have loose parts.

#### *Article 151*

Workers exposed to the risk of head trauma must have suitable protective headgear which is durable, non-combustible, appropriately padded inside, ventilated and where necessary also protects the face and neck.

Workers that are near machines, equipment with moving parts and incandescent substances must protect their hair with washable non-flammable covering.

Protective headgear must be issued individually, and if it is shared for any reason the internal plastic part which comes into contact with the head must be changed.

#### *Article 152*

Workers in areas which could cause potential damage to their eyes (from dust, projectiles, hot or caustic substances, dust, fumes, intense light or radiation) must have the appropriate protective, well-fitting eyewear, or visor.

Eye protectors must be of appropriate optical quality, durable, light and must be kept clean. They must be designed to ensure that they cannot easily fall off.

Eyewear and visors must be issued individually, and if used by anyone else they must be sterilized and any straps replaced.

#### *Article 153*

Workers in areas of intense or ongoing noise must use appropriate ear protection, which must be clean and must be sterilized if different workers use it. Where noise levels are above 80 decibels, in addition to other protective measures which may be taken, special ear protectors must be worn.

Ear protectors designed to protect against sparks or projectiles must be made of durable, anti-oxidizing net, must be light and held in position by an adjustable strap around the back of the head.

#### *Article 154*

Workers involved in operations which run the risk of cuts, abrasions, burns or corrosion of the hands must be equipped with the appropriate gloves made of suitable material depending on the type of risk.

Workers using machines with moving parts must not use gloves.

Workers handling toxic, irritant or corrosive substances must have gloves which cover the forearms and fit perfectly with other protective clothing being worn to provide complete coverage.

Lead gloves used as protection against x-ray must cover at least half of the forearm and be at least 0.5mm thick, without prejudice to their flexibility.

Workers working with electricity must have the appropriate rubber, neoprene or plastic gloves clearly marked with the maximum voltage for which they were manufactured.

#### *Article 155*

Workers involved in operations which run the risk of cuts, abrasions, burns or corrosion of the feet must be equipped with the appropriate footwear made of suitable material depending on the type of risk.

In situations where there is a risk of mechanical accident to the feet, workers must be equipped with steel toe-capped boots.

In cases where there is a risk from dangerous liquids workers must be equipped with boots of appropriate protective material, and such boots must be manufactured in such a way that the sole cannot separate from the rest of the boot.

In cases where workers work with extremely hot materials or in areas of extreme heat they must be equipped with asbestos boots.

When working in wet or damp areas workers must be given long boots or waders.

Where there is danger from electricity workers must have insulated footwear.

Where there is danger from sparks, footwear must not contain any metal.

Wherever possible the soles of footwear must be anti-slip and where there is a danger from nails, glass or other sharp items the sole of the footwear must incorporate a metal plate.

Legs and knees must be protected by the relevant type of clothing or protectors, which can be removed at speed in case of emergency.

#### *Article 156*

In any situation where any other part of a worker's body is at risk, adequate protective equipment or clothing must be provided. Where there is any risk of fire, no protective clothing used should be made of artificial, flammable materials.

#### *Article 157*

Workers at risk of inhaling dust, gases or noxious fumes must be provided with the appropriate type of mask for the risk incurred.

Breathing equipment should, preferably be individual, and be sterilized if used by anyone else.

Parts of masks or breathing equipment which are in contact with the skin must be of treated rubber or neoprene to reduce the risk of skin irritation.

In situations where there is a lack of air or of oxygen masks with filters must be used, either mechanical or chemical filters should be used as the case requires.

In situations where toxic, irritant or infectious substances, or gases are present portable breathing apparatus with an air or oxygen injection system should be used. Individual portable breathing apparatus should only be used by those trained in its use.

#### *Article 158*

Workers exposed to the risk of free fall must use safety harnesses, safety cables and attachments all of which must be of appropriate material and must be sufficiently strong and weight-bearing.

Safety harnesses must not permit a free fall of more than 1m unless circumstances so require.

Harnesses must have a top quality fabric or leather belt, 10-20cm wide, 44mm thick and as short as possible.

Harnesses must be checked before use and rejected if they have any flaw which could limit their strength.

Safety cord must be 12mm nylon or 17mm hemp rope. Metal cable must not be used.

#### *Article 159*

In addition to other forms of protection workplaces must use standard safety colours to draw attention to specific dangers and delimit areas. Such colours must be clearly visible and easy to understand.

The following colours are considered standard:

- Red – stop, emergency stop, alarm, prohibition, fire fighting
- Yellow – unseen danger and dangerous substances, other types of danger such as tripping, falling etc.
- Green – Absence of danger, safe area, medical or first aid
- Blue – Technical or safety information
- White – Contract and delimitation
- Black – Contrast

The following colour coding is used for pipes and tubing:

- Steam – red
- Water – green
- Air – blue
- Gas – yellow
- Acid – orange
- Alkali – purple
- Oils – brown
- Tars – black

#### *Article 160*

First aid boxes must be available in designated places next to work areas. Such boxes must be 0.5mx0.275mx0.165m and must contain the relevant first aid materials. Those industrial establishments employing more than 100 people must have a medical post within the workplace.

#### Article 161

All companies designated as industrial and with more than 50 workers, or with less than 50 workers but in an industry which implies significant risk of accident, must have a safety committee.

The committee may have subcommittees if necessary.

The employer must give all support necessary to ensure that the committees fulfil their functions.

Each committee is to comprise four members, two nominated by the employer and two by the union committee. One of those nominated by the employer shall be the director of the industrial establishment or his representative. The employee's representatives shall be named annually by the union committee in agreement with the company management. If the company and union are unable to agree the representatives shall be named by the Institute for Employment, Safety and Social Action.<sup>7</sup>

Committees must meet at least once per month, and whenever called by the Chair, decided upon by the committee's own initiative or when three or more of the committee members get together.

#### Article 162

Safety committees are to investigate the causes of accidents, study precautions and health, safety and hygiene rules in place in the establishment, ensure that such rules are complied with, and encourage a spirit of compliance with health and safety requirements among the workforce.

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<sup>7</sup> Translator's note – this institute no longer exists