

Chapter :- Safety provisions (Under the Factories Act, 1948)

Section 21: Fencing the Machinery

This section states that the factory should fence the following machinery or substantial construction and maintain them in the right position:

- (a) every moving part of a prime-mover and every flywheel, whether the prime-mover or flywheel is in the engine-house or not.
- (b) the headrace and tailrace of every water-wheel and water-turbine.
- (c) any part of a stock bar which projects beyond the headstock of a lathe.
- (d) every part of an electric generator, a motor or rotary converter.
- (e) every part of transmission machinery.
- (f) every dangerous part of any other machinery.

Section 22: Work on or Near Machinery in Motion

This section states:

(a) Firstly, whenever machinery is in motion and it becomes necessary to do the inspection, lubrication, repairs, etc., the factory should appoint a specially trained expert man, wearing tight-fitting clothes to do the job.

Moreover, such worker shall not handle a belt at a moving pulley unless:

1. the belt is not more than fifteen centimeters in width
2. the belt, including the joint and the pulley rim, is in good repair
3. there is reasonable clearance between the pulley and any fixed plant or structure
4. the pulley is normally for the purpose of the drive

(b) Secondly, the factory owners should not allow any woman or young person to clean, lubricate or adjust any part of a prime-mover or of any transmission machinery while prime-mover or transmission machinery is in motion.

Section 23: Employment on Dangerous Machines

This section states that the factory owners or managers cannot allow any worker to work any machine without instructing him/her about the dangerous outcomes and the relevant precautions. Moreover, before the appointment, the manager has to see that the worker has relevant skills and knowledge to work on the machinery.

Section 24: Devices for Cutting off Power

This section states:

- (a) In every factory, there should be suitable devices for cutting off power in emergencies from running machinery in all the workrooms. In the case of factories which do not belong to this Act have to just do the arrangements in the workroom in which electricity is used to generate power.
- (b) The factory should provide and maintain suitable striking gear or other efficient mechanical appliance to move driving belts.
- (c) Driving belts when not in use shall not be allowed to rest.

Section 25: Self-Acting Machinery

This section states that no factory should allow any traversing part of a self-acting machine in any factory to run within a distance of forty-five centimeters from any fixed structure which is not part of the machine.

Section 26: Casing of New Machinery

In all machinery driven by power and installed in any factory after the commencement of this Act,-

- (a) every set screw, bolt or key on any revolving shaft, spindle, wheel shall be so sunk, encased or otherwise effectively guarded as to prevent danger;
- (b) all spur, worm and other toothed or friction gearing which does not require frequent adjustment while in motion shall be completely encased, unless it is so situated as to be as safe as it would be if it were completely encased.

Section 27. Prohibition of employment of women and children near cotton-openers.-

No woman or child shall be employed in any part of a factory for pressing cotton in which a cotton-opener is at work:

Provided that if the feed-end of a cotton-opener is in a room separated from the delivery end by a partition extending to the roof or to such height as the Inspector may in any particular case specify in writing, women and children may be employed on the side of the partition where the feed-end is situated.

Section 28. Hoist and lifts.-

(1) In every factory-

- (a) every hoist and lift shall be-
 - (i) of good mechanical construction, sound material and adequate strength;
 - (ii) properly maintained, and shall be thoroughly examined by a competent person at least once in every period of six months, and a register shall be kept containing the prescribed particulars of every such examination;
- (b) every hoistway and liftway shall be sufficiently protected by an enclosure fitted with gates, and the hoist or lift and every such enclosure shall be so constructed as to prevent any person or thing from being trapped between any part of the hoist or lift and any fixed structure or moving part;
- (c) the maximum safe working load shall be plainly marked on every hoist or lift, and no load greater than such load shall be carried thereon;
- (d) the cage of every hoist or lift used for carrying persons shall be fitted with a gate on each side from which access is afforded to a landing;
- (e) every gate referred to in clause (b) or clause (d) shall be fitted with inter-locking or other efficient device to secure that the gate cannot be opened except when the cage is at the landing and that the cage cannot be moved unless the gate is closed.

(2) The following additional requirements shall apply to hoists and lifts used for carrying persons and installed or reconstructed in a factory after the commencement of this Act, namely:-

- (a) where the cage is supported by rope or chain, there shall be at least two ropes or chains separately connected with the cage and balance weight, and each rope or chain with its attachments shall be capable of carrying the whole weight of the cage together with its maximum load;
- (b) efficient devices shall be provided and maintained capable of supporting the cage together with its maximum load in the event of breakage of the ropes, chains or attachments;
- (c) an efficient automatic device shall be provided and maintained to prevent the cage from over-running.

(3) The Chief Inspector may permit the continued use of a hoist or lift installed in a factory before the commencement of this Act which does not fully comply with the provisions of sub-section (1) upon such conditions for ensuring safety as he may think fit to impose.

(4) The State Government may, if in respect of any class or description of hoist or lift, is of opinion that it would be unreasonable to enforce any requirements of sub-sections (1) and (2), by order direct that such requirement shall not apply to such class or description of hoist or lift.

Explanation.- For the purposes of this section, no lifting machine or appliance shall be deemed to be a hoist or lift unless it has a platform or cage, the direction or movement of which is restricted by a guide or guides.

Section 29. Lifting machines, chains, ropes and lifting tackles. -

(1) In any factory the following provisions shall be complied with in respect of every lifting machine (other than a hoist and lift) and every chain, rope and lifting tackle for the purpose of raising or lowering persons, goods or materials:-

- (a) all parts, including the working gear, whether fixed or movable, of every lifting machine and every chain, rope or lifting tackle shall be-
 - (i) of good construction, sound material and adequate strength and free from defects;
 - (ii) properly maintained; and
 - (iii) thoroughly examined by a competent person at least once in every period of twelve months, or at such intervals as the Chief Inspector may specify in writing, and a register shall be kept containing the prescribed particulars of every such examination;

- (b) no lifting machine and no chain, rope or lifting tackle shall, except for the purpose of test, be loaded beyond the safe working load which shall be plainly marked there on together with an identification mark and duly entered in the prescribed register; and where this is not practicable, a table showing the safe working load of every kind and size of lifting machine or chain, rope or lifting tackle in use, shall be displayed in prominent position on the premises;
- (c) while any person is employed or working on or near the wheel track of a travelling crane in any place where he would be liable to be struck by the crane, effective measures shall be taken to ensure that the crane does not approach within six metres of that place.

(2) The State Government may make rules in respect of any lifting machine or any chain, rope or lifting tackle used in factories-

- (a) prescribing further requirements to be complied with in addition to those set out in this section ;
- (b) providing for exemption from compliance with all or any of the requirements of this section, where in its opinion, such compliance is unnecessary or impracticable.

(3) For the purposes of this section a lifting machine or a chain, rope or lifting tackle shall be deemed to have been thoroughly examined if a visual examination supplemented, if necessary, by other means and by the dismantling of parts of the gear, has been carried out as carefully as the conditions permit in order to arrive at a reliable conclusion as to the safety of the parts examined.

Section 30. Revolving machinery. -

(1) In every factory in which the process of grinding is carried on there shall be permanently affixed to or placed near each machine in use a notice indicating the maximum safe working peripheral speed of every grindstone or abrasive wheel, the speed of the shaft or spindle upon which the wheel is mounted, and the diameter of the pulley upon such shaft or spindle necessary to secure such safe working peripheral speed.

(2) The speeds indicated in notices under sub-section (1) shall not be exceeded.

(3) Effective measure shall be taken in every factory to ensure that the safe working peripheral speed of every revolving vessel, cage, basket, flywheel pulley, disc or similar appliance driven by power is not exceeded.

Section 31. Pressure plant. -

(1) If in any factory, any plant or machinery or any part thereof is operated at a pressure above atmospheric pressure, effective measures shall be taken to ensure that the safe working pressure of such plant or machinery or part is not exceeded.

(2) The State Government may make rules providing for the examination and testing of any plant or machinery such as is referred to in sub-section (1) and prescribing such other safety measures in relation thereto as may in its opinion, be necessary in any factory or class or description of factories.

(3) The State Government may, by rules, exempt, subject to such conditions as may be specified therein, any part of any plant or machinery referred to in sub-section (1) from the provisions of this section.

Section 32. Floors, stairs and means of access. -

In every factory-

- (a) all floors, steps, stairs, passages and gangways shall be of sound construction, and properly maintained and shall be kept free from obstructions and substances likely to cause persons to slip and where it is necessary to ensure safety, steps, stairs, passages and gangways shall be provided with substantial handrails;
- (b) there shall, so far as is reasonably practicable, be provided, and maintained safe means of access to every place at which any person is at any time required to work;
- (c) when any person has to work at a height from where he is likely to fall, provision shall be made, so far as is reasonably practicable, by fencing or otherwise, to ensure the safety of the person so working.

Section 33. Pits, sumps, openings in floors, etc. -

(1) In every factory every fixed vessel, sump, tank, pit or opening in the ground or in a floor which, by reason of its depth, situation, construction or

contents, is or may be a source of danger, shall be either securely covered or securely fenced.

(2) The State Government may, by order in writing, exempt, subject to such conditions as may be prescribed, any factory or class or description of factories in respect of any vessel, sump, tank, pit or opening from compliance with the provisions of this section.

Section 34. Excessive weights. -

(1) No person shall be employed in any factory to lift, carry or move any load so heavy as to be likely to cause him an injury.

(2) The State Government may make rules prescribing the maximum weights which may be lifted, carried or moved by adult men, adult women, adolescents and children employed in factories or in any class or description of factories or in carrying on in any specified process.

Section 35. Protection of eyes. -

In respect of any such manufacturing process carried on in any factory as may be prescribed, being a process which involves-

- (a) risk of injury to the eyes from particles or fragments thrown off in the course of the process, or
- (b) risk to the eyes by reason of exposure to excessive light, the State Government may by rules require that effective screens or suitable goggles shall be provided for the protection of persons employed on, or in the immediate vicinity of, the process.

Section 36. Precautions against dangerous fumes, gases, etc.-

(1) No person shall be required or allowed to enter any chamber, tank, vat, pit, pipe, flue or other confined space in any factory in which any gas, fume, vapour or dust is likely to be present to such an extent as to involve risk to persons being overcome thereby, unless it is provided with a manhole of adequate size or other effective means of egress.

(2) No person shall be required or allowed to enter any confined space as is referred to in sub-section (1), until all practicable measures have been taken

to remove any gas, fume, vapour or dust, which may be present so as to bring its level within the permissible limits and to prevent any ingress of such gas, fume, vapour or dust and unless-

- (a) a certificate in writing has been given by a competent person, based on a test carried out by himself that the space is reasonably free from dangerous gas, fume, vapour or dust: or
- (b) such person is wearing suitable breathing apparatus and a belt securely attached to a rope the free end of which is held by a person outside the confined space.

Section 36A. Precautions regarding the use of portable electric light.-

In any factory-

- (a) no portable electric light or any other electric appliance of voltage exceeding twenty-four volts shall be permitted for use inside any chamber, tank, vat, pit, pipe, flue or other confined space unless adequate safety devices are provided; and
- (b) if any inflammable gas, fume or dust is likely to be present in such chambers tank, vat, pipe, flue or other confined space, no lamp or light other than that of flame-proof construction shall be permitted to be used therein.

Section 37. Explosive or inflammable dust, gas, etc. -

Where in any factory any manufacturing process produces dust, gas, fume or vapour of such character and to such extent as to be likely to explode on ignition, all practicable measures shall be taken to prevent any such explosion by-

- (a) effective enclosure of the plant or machinery used in the process;
- (b) removal or prevention of the accumulation of such dust, gas, fume or vapour;
- (c) exclusion or effective enclosure of all possible sources of ignition.

(2) Where in any factory the plant or machinery used in a process such as is referred to in sub-section (1), is not so constructed as to withstand the probable pressure which such an explosion as aforesaid would produce, all practicable measures shall be taken to restrict the spread and effects of the

explosion by the provision in the plant or machinery of chokes, baffles, vents or other effective appliances.

(3) Where any part of the plant or machinery in a factory contains any explosive or inflammable gas or vapour under pressure greater than atmospheric pressure, that part shall not be opened except in accordance with the following provisions, namely:-

- (a) before the fastening of any joint of any pipe connected with the part or the fastening of the cover of any opening into the part is loosened, any flow of the gas or vapour into the part of any such pipe shall be effectively stopped by a stop-valve or other means;
- (b) before any such fastening as aforesaid is removed, all practicable measures shall be taken to reduce the pressure of the gas or vapour in the part or pipe to a atmospheric pressure;
- (c) where any such fastening as aforesaid has been loosened or removed effective measures shall be taken to prevent any explosive or inflammable gas or vapour from entering the part or pipe until the fastening has been secured, or, as the case may be, securely replaced:

Provided that the provisions of this sub-section shall not apply in the case of plant or machinery installed in the open air.

(4) No plant, tank or vessel which contains or has contained any explosive or inflammable substance shall be subjected, in any factory, to any welding, brazing, soldering or cutting operation which involves the application of heat unless adequate measures have first been taken to remove such substance and any fumes arising therefrom or to render such substance and fumes non-explosive or non-inflammable and no such substance shall be allowed to enter such plant, tank or vessel after any such operation until the metal has cooled sufficiently to prevent any risk of igniting the substance.

(5) The State Government may by rules exempt, subject to such conditions as may be prescribed, any factory or class or description of factories from compliance with all or any of the provisions of this section.

Section 38. Precautions in case of fire. -

(1) In every factory, all practicable measures shall be taken to prevent outbreak of fire and its spread, both internally and externally, and to provide and maintain-

- (a) safe means of escape for all persons in the event of a fire, and
- (b) the necessary equipment and facilities for extinguishing fire.

(2) Effective measures shall be taken to ensure that in every factory all the workers are familiar with the means of escape in case of fire and have been adequately trained in the routine to be following in such cases.

(3) The State Government may make rules, in respect of any factory or class or description of factories, requiring the measures to be adopted to give effect to the provisions of sub-sections (1) and (2).

(4) Notwithstanding anything contained in clause (a) of sub-section (1) or sub-section (2), if the Chief Inspector, having regard to the nature of the work carried on in any factory, the construction of such factory, special risk to life or safety, or any other circumstances, is of the opinion that the measures provided in the factory, whether as prescribed or not, for the purposes of clause (a) of sub-section (1) or sub-section (2), are inadequate, he may, by order in writing, require that such additional measures as he may consider reasonable and necessary, be provided in the factory before such date as is specified in the order.

Section 39. Power to require specifications of defective parts or tests of stability. -

If it appears to the Inspector that any building or part of a building or any part of the ways, machinery or plant in a factory is in such a condition that it may be dangerous to human life or safety, he may serve on the occupier or manager or both of the factory an order in writing requiring him before a specified date-

- (a) to furnish such drawings, specifications and other particulars as may be necessary to determine whether such buildings, ways, machinery or plant can be used with safety, or

- (b) to carry out such tests in such manner as may be specified in the order, and to inform the Inspector of the results thereof.

Section 40. Safety of buildings and machinery. -

(1) If it appears to the Inspector that any building or part of a building or any part of the ways, machinery or plant in a factory is in such a condition that it is dangerous to human life or safety, he may serve on the occupier or manager or both of the factory an order in writing specifying the measures, which in his opinion should be adopted and requiring them to be carried out before a specified date.

(2) If it appears to the Inspector that the use of any building or part of a building or any part of the ways, machinery or plant in a factory involves imminent danger to human life or safety he may serve on the occupier or manager or both of the factory an order in writing prohibiting its use until it has been properly repaired or altered.

Section 40A. Maintenance of buildings. -

If it appears to the Inspector that any building or part of a building in a factory is in such a state of disrepair as is likely to lead to conditions detrimental to the health and welfare of the workers, he may serve on the occupier or manager or both of the factory an order in writing specifying the measures which in his opinion should be taken and requiring the same to be carried out before such date as is specified in the order.

Section 40B. Safety Officers. -

(1) In every factory-

- (i) wherein one thousand or more workers are ordinarily employed, or
- (ii) wherein, in the opinion of the State Government, any manufacturing process or operation is carried on, which process or operation involves any risk of bodily injury, poisoning or disease or any other hazard to health, to the person employed in the factory,

the occupier shall, if so required by the State Government by notification in Official Gazette, employ such number of Safety Officers as may be specified in that notification.

(2) The duties, qualifications and conditions of service of Safety Officers shall be such as may be prescribed by the State Government.

Section 41. Power to make rules to supplement this Chapter. The State Government may make rules requiring the provision in any factory or in any class or description of factories of such further devices and measures for securing safety of persons employed therein as it may deem necessary.