

Chapter 14:08 Factories and Works (Machinery) Regulations, 1976

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Rhodesia Government Notice No. 302 of 1976

Amended by S.I.s 283/82 and 479/82.

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SCHEDULE: Forms

IT is hereby notified that the Minister of Labour and Social Welfare has, in terms of [subsection \(1\) of section 34 of the Factories and Works Act \[Chapter 14:08\]](#), made the following regulations:—

PRELIMINARY

Title

- 1 (1) These regulations may be cited as the Factories and Works (Machinery) Regulations, 1976.
- (2) These regulations shall come into operation on the **1st May, 1976**.

Interpretation of terms

2 In these regulations—

"Chief Inspector" means the Chief Inspector of Factories appointed in terms of [section 4 of the Act](#);

"circular saw" means a circular saw working in a bench (including a rack bench) for the purpose of ripping, deep cutting or cross-cutting but does not include a swing or pendulum saw which is moved towards the material which is to be sawn;

"competent person" means a person who has served an apprenticeship in an appropriate trade or who has had not less than 5 years' practical experience working with machinery and who has a thorough knowledge of the machinery of which he is in charge, or which he is required to examine;

"driving belt" means every belt, band, chain, rope, cord or similar appliance by means of which rotary motion is transmitted from any 1 part to any other part of the transmission machinery;

"operator" means any person who may operate a machine;

"plane bandsaw" means a bandsaw other than a log breakdown saw, the cutting portion of which may run in any plane;

"qualified person" means a person who is able to submit documentary proof that he has received a thorough theoretical and practical education and training in engineering to the satisfaction of a competent professional institution recognized by the Chief Inspector, and who has held a position of independent responsibility for the control and supervision of machinery;

"transmission machinery" means—

(a) every shaft, wheel, spur wheel, gear wheel, gear, drum, pulley, coupling, clutch, driving belt, or any other device incidental to the transmission of motion between any driving unit and any other machine or appliance, or between 1 section or part of any machine and any other section or part of the same machine or any other machine;

(b) any wheel, clutch, gear train, system of fast and loose pulleys, or other device through which any machine receives its motion;

"underground room" means a room, the floor of which is 2 metres or more below the level of the surrounding ground;

"user" means an occupier or builder, or the person owning or leasing the machinery or appliance;

"within reach" means a distance of 2 metres in any direction from any spot, point or station on which a person may have to stand apart at any time, either in the course of his employment or incidental thereto;

"wood working machinery" means any circular saw, plane bandsaw, planing machine, spindle moulding machine, chain mortising machine or any other power driven machine used for sawing, shaping, chipping or hogging wood.

PART I

MACHINERY GENERAL

Responsible persons

3 (1) All machinery in operation in a factory or used in connexion with structural work, shall be placed in charge of some responsible person appointed by the user in writing:

Provided that—

(i) where such machinery includes prime movers capable of developing 375 kilowatt power or more, or machinery operated by electric power and the total power of the motors which may be used simultaneously is 750 kilowatts or more, the person appointed shall be a qualified person;

(ii) where upon any premises steam boilers of a rated capacity of 5000 kilograms per hour or more, are used, the Chief Inspector may require that a qualified person shall be placed in charge;

(iii) in the case of a boiler operating at a pressure not exceeding 550 kilopascals, or a boiler, the capacity of which is less than 100 litres, the attendant shall be a person who is experienced in his duties.

(2) No person shall be appointed to be in charge of a boiler or other machinery used on more than 1 set of premises without the permission of the Chief Inspector.

(3) The Chief Inspector may require a user to appoint more than 1 qualified person where, in his opinion, having regard to the size of the premises and the amount of machinery, it is necessary, and each such person shall be appointed to be in charge of a particular portion of the machinery.

(4) The qualified person or competent person in charge of machinery shall be responsible for the maintenance in good condition of all safety appliances and devices and protective guards, and shall stop the working of any machinery the using of which becomes or appears likely to become dangerous.

(5) The user shall notify the Chief Inspector in writing of the name of any qualified person or a

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Duties of users

4 Every user shall—

(a) take all reasonable measures to enforce the requirements of this Part and to ensure that they are observed by all persons employed on the premises;

(b) appoint such persons as may be necessary to assist him in enforcing the observance of the regulations;

(c) satisfy himself that all provisions affecting the safety of persons are complied with;

(d) cause every inexperienced person who is required to operate a machine which may cause personal injury, to be fully instructed regarding the possible dangers associated with its operation and the precautions to be observed;

(e) cause all plant, fittings, safety appliances, and everything necessary for compliance with this Part, to be provided and maintained in good order and repair.

Machinery failure

5 In the event of the fracture and failure of any part of any machinery, whereby the safety of any person was or might have been endangered, the user shall report the occurrence in writing to an inspector without delay.

Attendance on machinery

6 A person operating machinery of any kind which, to ensure the safety of himself or other persons, requires constant attention, shall not for any reason absent himself or cease to attend to such machinery during the period he is responsible for its working, unless he is replaced by another operator, on the authority of the person in charge of the plant.

Obedience to orders

7 All persons employed on premises where machinery is used shall obey any instructions for the proper observance of this Part, or in the interests of safety, given to them by the user or any person authorized by the user.

General machinery protection

8 (1) Every dangerous moving part of machinery not specifically referred to in this Part and which is within the normal reach of any person shall be securely fenced or guarded.

(2) Notwithstanding the provisions of [subsection \(1\)](#), if it is not possible to guard such machinery or moving parts of machinery by virtue of the nature of the operation, the area around such a machine shall be fenced off and only a competent person shall tend to such a machine.

(3) All guards and fences supplied in terms of this section shall be of substantial construction and shall be kept in position at all times during the normal operation of the machinery.

(4) Subject to the provisions of [subsection \(2\)](#), no person shall trespass, or be permitted by the user to trespass, within any safety guards or fences whilst the machinery is in motion.

Starting and stopping machinery

9 (1) A user shall provide every machine with an efficient stopping and starting appliance and the control of this appliance shall be in such a position as to be readily and conveniently operated:—

provided that, in the case of large machines, additional stop appliances shall be placed at strategic points on the machine, as an inspector may require.

[proviso inserted by SI 283/82 with effect from the 14th May, 1982.]

(2) In the case of belt-driven machinery which it is necessary to stop and start without interfering with the speed of the driving unit, the user shall provide a satisfactory permanent mechanical appliance for the purpose, so constructed as to prevent accidental starting of the machinery.

(3) Any person intending to set a machine or machinery in motion, shall, before doing so, take all reasonable precautions to ensure that no other person is in the act of repairing, cleaning, oiling, adjusting or otherwise working on or dangerously close to such machine or machinery.

Cleaning, repairing and oiling machinery

10 (1) No user shall require or permit any person to, and no person shall clean, repair or adjust machinery in motion or any parts adjacent to machinery in motion or lubricate such machinery unless the lubricating devices are so situated as to obviate the close approach to dangerous moving parts:

Provided that where it is impracticable to stop such machinery for the purpose of cleaning, repairing, adjusting or lubricating, such cleaning, repairing, adjusting or lubricating shall be performed by a competent person.

(2) An inspector may require the user to provide automatic devices for lubricating machinery whilst in motion where this is practicable.

(3) No user shall require or permit driving-belts to be treated and no person shall treat driving-belts with resin or any composition unless at rest or unless special devices are fitted for the safe feeding of such driving-belts.

Revolving and reciprocating machinery

11 (1) A user shall cause every—

(a) shaft, pulley, wheel, gear, coupling, collar, clutch, friction drum and the like to be securely fenced or guarded, unless it is in such a position and of such construction as to be as safe to every person as it would be if securely fenced or guarded;

(b) set screw, key or bolt on any revolving shaft, coupling, collar, friction drum, clutch, wheel, pulley, gear and the like to be counter-sunk, enclosed or otherwise guarded as to prevent danger, unless it is so situated as to be as safe as it would be if completely encased.

(2) No user shall require or permit a pulley to be used which is in any way damaged.

Projecting shaft ends

12 A user shall cause—

(a) all square projecting shaft or spindle ends; and

(b) all other shaft or spindle ends within reach which project for more than a quarter of their diameter;

to be encased by a cap or shroud or to be otherwise completely enclosed.

Transmission belts

13 (1) A user shall cause—

(a) all driving belts, ropes, chains and sprockets to be close guarded;

(b) the underside of every overhead driving belt, rope or chain above passages or work places to be so guarded as to prevent a broken belt, rope or chain falling;

(c) the guards or fences of belt, rope and chain drives over or adjacent to passages or work places to be so constructed as to resist the force of a broken belt, rope or chain:

Provided that paragraphs (a) and (b) of this subsection shall not apply where in the opinion of an inspector no danger exists in the case of light belts, due to the nature thereof and speed of operation.

(2) No user shall require or permit any person to and no person shall ship or unship driving belts whilst the machinery is in motion:

Provided that—

(i) light belts may be shifted on the coned pulleys of machine tools for the purpose of alteration in the working speed;

(ii) in the case of continuous processes an inspector may approve an apparatus for shipping and unshipping belts in motion and such belts shall either be joined by an approved safety type of belt fastener, or laced.

(3) A user shall provide and cause to be used, proper appliances to prevent any driving belt, thrown off or removed from any wheel, drum or pulley from coming into contact with any shaft motion, and no person shall cause any driving belt to rest or ride upon a shaft in motion.

Condition of safety appliances and machinery

14 Every user shall cause all safety appliances, devices or guards to be maintained in good working condition and to be properly used, and shall stop the working of any machinery, the using of which appears likely to be, or becomes dangerous to persons in the vicinity.

Illumination of machinery

15 (1) Where the natural light at any machinery is deficient, or where machinery is used at night, the user shall install artificial lighting so that the external moving parts can be clearly distinguished.

(2) Artificial light shall be so placed or shaded as to prevent direct rays from impinging on the eyes of the person operating a machine in a manner which interferes with the efficient, safe or convenient performance of his work.

Wearing of loose clothing and personal apparel

16 No person working in close proximity to moving machinery shall wear, or be permitted by the user to wear, loosely fitting outer clothing, belts, jewellery, ornaments, watch or key chains or straps.

competent person appointed by him in terms of this section.

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Intoxication

17 (1) No person shall consume, or offer to any other person or have in his possession intoxicating liquor, whilst at work on any premises where machinery is used.

(2) No person who is under the influence of intoxicating liquor or a drug, shall enter or remain upon premises where machinery is used.

Information regarding regulations and instructions

18 (1) Wherever machinery is used in a factory or on structural work, a user shall post in a conspicuous place such of the following notices as may be applicable to the machinery in use—

(a) users of woodworking machinery (form **F.M.1**); or

(b) users of other machinery (form **F.M.2**); and

(c) any other notice which may be issued by the Chief Inspector.

(2) A user shall supply each of the responsible persons appointed in terms of [section 3](#) with a copy of the Act and these regulations free of charge.

(3) Where persons who cannot speak or read English are employed in the operation of, or in close proximity to, machinery, the user shall be responsible for their proper instruction, using their own language, regarding the dangers associated with the use of such machinery and the hazards which must be avoided to ensure safety.

(4) All notices posted in terms of this section which become illegible or are defaced, damaged or destroyed shall be renewed without delay.

PART II

SITING OF MACHINERY

Clear space

19 A user shall cause sufficient clear and unobstructed space to be maintained around every machine while it is in motion, to enable the work to be carried on without risk.

Condition of floors

20 A user shall cause the floor surrounding every machine to be maintained in a good and level condition, and as far as practicable free from chips or, other loose material, and shall not allow it to become slippery.

Underground rooms

21 A user shall not require or permit any machinery to be operated in an underground room unless the room is certified by the Chief Inspector to be suitable with respect to construction, light and ventilation.

Dangerous places

22 An occupier or user shall cause all elevated platforms, openings therein, openings in floors, pits, trap-holes and other dangerous places on the premises to be securely fenced.

No admittance to unauthorized persons

23 No person other than a person authorized by the user, or a person entitled by law to do so, shall enter any premises where machinery is in use.

PART III

SAFETY PRECAUTIONS IN REGARD TO PARTICULAR MACHINES

Grinding wheels and machines

24 (1) A user shall cause every power operated grinding machine to be marked in a conspicuous place on the machine with the maximum permitted speed or speeds in revolutions per minute of the stone or grinding wheel or disc.

(2) No user shall require or permit any person to, and no person shall—

(a) fit a grinding wheel to a machine or operate or use such a machine unless—

(i) in the case of grinding wheels with diameters of 100 millimetres or larger, the manufacturer's rated maximum speed in revolutions per minute is clearly and distinctly marked on the wheel and the speed of the machine spindle does not cause a peripheral speed of the wheel in excess of that corresponding to the manufacturer's rated safe maximum speed;

(ii) in the case of a grinding wheel with a diameter smaller than 100 millimetres, the speed of the machine spindle in revolutions per minute does not permit a peripheral speed of the wheel in excess of 27,50 metres per second:

Provided that if the manufacturer recommends a higher or lower safe peripheral speed for the wheel, the speed of the spindle does not cause a peripheral speed of the wheel in excess of that corresponding to the manufacturer's recommended safe maximum speed;

(iii) in the case of a mounted grinding wheel, points or burrs, the speed of the spindle in revolutions per minute does not exceed the manufacturer's recommended safe maximum speed;

(b) use a grinding wheel which is damaged or which is not properly dressed or true in diameter.

(3) Every grinding wheel shall be mounted concentrically on the spindle by means of robust metal flanges having an outside diameter of, not less than 1/3rd of the diameter of the grinding wheel and each flange shall bear upon the wheel by means of an annular peripheral bearing surface of adequate depth and a layer of suitable compressible material shall be fitted between the flanges and the wheel:

Provided that grinding wheels for specialized application which cannot be fixed by flanges shall be so secured that displacement or rupture of the wheel in motion is eliminated, to the satisfaction of an inspector.

(4) Unless the nature of the work precludes its use, the user shall fit every grinding wheel with a substantial guard which shall enclose the wheel its far as practicable and which shall be of sufficient strength to withstand the force of a rupturing wheel.

(5) Except in the case where the work piece is not applied, to the wheel by hand, the user shall cause every grinding machine to be fitted with a substantial, adjustable work rest which shall be securely fixed in position and which shall fit the contour of the grinding surface of the wheel, and such work rests shall at all times be kept in position and adjusted to within 3 millimetres from the grinding surface of the wheel, unless the nature of any specific operation makes this impracticable.

(6) A user shall fit every grinding machine with a transparent shield which shall be kept so adjusted as to protect the worker's eyes:

Provided that this shield may be dispensed with when each worker using the grinding machine is issued with a suitable pair of goggles or a face shield.

(7) The user shall cause a notice to be affixed in conspicuous place at every grinding machine prohibiting persons from carrying out, inspecting or observing grinding work without suitable eye protection.

Machine tools

25 A user shall cause—

(a) every rotating stock bar which extends beyond the end of a machine to be guarded by means of either a fence or a substantially supported tubular guard covering the projecting stock bar;

(b) every machine where cutting lubricants are used to be equipped with suitable splash guards and pans so designed and maintained as to prevent contamination of the operator's clothing and person by the cutting lubricant.

Shears, guillotines and presses

26 (1) A user shall cause every shear, guillotine or press to be guarded at the point of operation with—

(a) a fixed guard which prevents the passage of the operator's fingers into the danger zone; or

(b) a self-adjusting guard which automatically adjusts itself to the thickness of the material being worked; or

(c) a manually or automatically operated moving guard which completely encloses the danger zone, so arranged that the working stroke cannot commence unless the guard is closed and the guard cannot open unless the ram or blade is stationary; or

(d) a sweep or push guard which automatically pushes every part of the operator's body out of the danger zone when the working stroke commences;

(e) an electronic device which will prevent or arrest an operating stroke when any part of the operator's body is in the danger zone; or

(f) any other protection approved by an inspector:

Provided that—

- (i) when it is impracticable to install a guard, an inspector may permit an arrangement whereby both hands of the operator must be engaged for starting and maintaining the descent of the ram or blade;
- (ii) where more than 1 operator is required to operate a shear, guillotine or press, 2-handed controls shall be fitted for each operator, which controls shall be so inter-connected, that both hands of each operator must be engaged simultaneously for the duration of the working stroke;
- (iii) where the nature of any specific operation makes the use of a guard impracticable an inspector may permit the shear, guillotine or press to be operated without a guard under such conditions as he may consider necessary.

(2) Where it is necessary to observe the work in progress, a user shall cause the guards to be so constructed as not unduly to obscure such work.

(3) A user shall cause every power operated shear, guillotine or press, which is fed by hand, to be so constructed that inadvertent operation is prevented.

Slitting machines and milling machines

27 A user shall cause the, circular disc cutters of slitting machines or milling machines to be fitted with guards enclosing the cutting edges of the discs to a point as close as practicable to the material being cut, and such guards may be either fixed manually adjustable guards, so adjusted at all times that the distance between the material being cut and the bottom of the guard does not exceed 9 millimetres, or self-adjusting guards arranged so as automatically to adjust themselves to the thickness of the material being cut.

Mixing, agitating and similar machines

28 (1) A user shall cause every opening in a machine, tank, drum, cylinder or container which is equipped with ploughs, blades, knives, paddles, mixing arms, beaters or other devices for stirring, blending, mixing, cutting or separating liquids, solids or a combination of these to be fitted, wherever practicable, with substantial guards, doors or covers so interlocked as to prevent access to the ploughs, blades, knives, paddles, mixing arms or other devices whilst these are in motion or to prevent these being set in motion whilst such guards, doors or covers are not in place.

(2) If an inspector is satisfied that the situation and the arrangement of the apparatus is such as to ensure the safety of persons, the provisions of [subsection \(1\)](#) shall be deemed to have been complied with.

(3) Where for operational reasons, it is not possible to provide guards, doors or covers to the feed or discharge openings, the user shall cause such openings to be closed by hoppers, chutes, or similar devices which shall be of such a size or extend to such a distance from the level of the openings as to prevent persons from reaching the ploughs, blades, knives, paddles, mixing arms or other devices:

Provided that where material can be fed or discharged through gratings the members of which are so spaced that the plough, blades, knives, paddles, mixing arms or other devices cannot be reached, such fixed gratings may be fitted instead of hoppers, chutes or similar devices.

(4) Where the ploughs, blades, knives, paddles, mixing arms or other devices become accessible only by the tilting of the machine, tank or other container, this section shall be deemed to have been complied with if the ploughs, blades, knives, paddles, mixing arms and other devices are brought to a standstill by the tilting action of the machine, tank or container:

Provided that where the discharge of the machine, tank or other container is by means of the action of the ploughs, blades, knives, paddles, mixing arms or other devices, a cover with a limited opening shall be fitted where practicable.

Rolls and calenders

29 (1) A user shall cause every power operated machine which consists of, or incorporates, 2 or more rolls rotating in opposite directions, which are less than 75 millimetres apart, to be guarded at, and for the full length of, the inrunning side or nip, whenever the nip is accessible.

(2) The guard shall consist of—

(a) a hopper, chute or spout so constructed that no person can reach into the nip of the rolls; or

(b) a fixed or self-adjusting guard at the feed side of the rolls with a slot or opening of such a size as to make it impossible to reach into the rolls; or

(c) a guard so positioned as to prevent inadvertent contact of the operator's hands with the nip of the rolls and which will otherwise prevent physical access to the rolls whilst they are in motion, and which is further equipped with a tripping bar which, if operated, will stop the rolls when it is necessary to gain physical access to the rolls; or

(d) a trip bar or cable across the full length of and not more than 300 millimetres from the nip of the rolls, so arranged as to stop or reverse the rolls when operated:

Provided that where it is not practicable to install any of the devices specified, an inspector may permit or require any further effective means of protection at the intake of the rolls.

Washing-machines, centrifugal extractors, etc

30 A user shall cause all power operated machines of the double cylinder type in which the inner cylinder, drum or basket rotates, to be fitted, where practicable, with a door, lid or cover on the outer cylinder so interlocked that the inner cylinder, drum or basket cannot be put into motion with the door, lid or cover open and that such door, lid or cover cannot be opened whilst the inner cylinder, drum or basket is in motion.

PART IV

REFRIGERATION

Records and log books

31 A user of refrigeration, cooling, air conditioning or freezing plant, of which the manufacturer's rated heat extraction capacity is more than 78 kilowatts refrigeration, shall—

[amended by SI 479/82 with effect from the 16th July, 1982.]

(a) nominate in writing a competent person who shall examine and test at least once in every 3 months the entire refrigeration, cooling, air conditioning or freezing plant and all its component and auxiliary parts:

Provided that pressure vessels containing liquid refrigerant shall be inspected and tested in accordance with the provisions of section 16 of Factories and Works (Pressure-vessels) Regulations, 1976.[SI 303/1976]

(b) provide a book to be known as **The Refrigerator Record Book** in which he shall enter the following particulars:—

(i) the name of a competent person nominated by him to carry out the examination and tests referred to in paragraph (a) or the name of the firm employing such competent person or persons;

(ii) the name and address of the manufacturer of the plant;

(iii) the maker's maximum rated capacity in kilowatts of refrigeration;

[amended by SI 479/82 with effect from the 16th July, 1982.]

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(iv) the refrigerant used;

- (v) the maximum safe working pressure;
- (vi) the condensation and evaporation temperature at which the rated capacity is calculated;
- (vii) the number of cylinders, bore, stroke and actual speed of compressor in revolutions per minute;
- (viii) the maker's rated speed of the compressor in revolutions per minute;
- (ix) the type of compressor;
- (x) the type of condenser;
- (xi) the type of driving unit;
- (xii) the power of the driving unit, or in the case of absorption systems the steam consumption per hour or the kilowatt rating, and whether direct coupled or belt driven.

Provision of protective and rescue equipment

32 (1) The user shall provide at the entrance to every refrigerating, cooling, or air conditioning or freezing plant, other than those in which fluorinated hydro carbons are used as the refrigerant, or at a nearby place or always readily accessible, an adequate length of hose permanently connected to a water supply and 2 suitable gas masks, which shall be examined at least once in every 6 months by a competent person.

(2) Where any refrigeration, cooling, air conditioning or freezing plant or part of a plant contains or may generate dangerous, toxic, asphyxiating, explosive or flammable liquids, gases, fumes or vapour the user shall—

- (a) take adequate precautions to ensure that no plant or part of a plant shall be opened or that no person shall enter within the danger zone unless every person whose health or safety may be endangered by such liquid, gas fumes or vapour, is adequately protected from such danger; and
- (b) provide adequate breathing and resuscitation apparatus and approved belts and ropes which shall be properly maintained and readily accessible at such plants.

Safety devices, valves and gauges

33 A user shall cause every refrigerating, cooling, air conditioning or freezing plant to be fitted with—

- (a) a pressure relief device in the case of positive displacement compressors, which shall be arranged to relieve automatically when the maximum safe working pressure of the refrigerant is exceeded, and the discharge shall be such as to ensure the safety of persons;
- (b) a pressure limiting device between the compressor or generator and the stop valve on the discharge side which shall stop the operation of the compressor or generator at or below the maximum safe working pressure;
- (c) a suitable pressure gauge to indicate the discharge pressure from the compressor;
- (d) a liquid trap, drier or interceptor on the suction side of the compressor, except in the case of wet compression when the compressor shall be fitted with a safety head.

Siting of control gear

34 A user shall cause—

- (a) all hand-controlled valves to be situated outside cool rooms;
[amended by SI 283/82 with effect from the 14th May, 1982.]
- (b) all doors of cool rooms, including associated air locks, to be capable of being opened quickly from the inside;
- (c) additional doors to be provided to machine rooms and passages, where in the opinion of an inspector, such doors are necessary to facilitate the escape of persons;

(d) instructions in the first-aid treatment of persons suffering from gassing effects to be posted up outside every entrance to a refrigeration-plant, cooling-plant, air-conditioning-plant or freezing- plant, and a first-aid kit to be situated therein.

[amended by SI 283/82 with effect from the 14th May, 1982.]

35 (1) At the examination referred to in [paragraph \(a\) of section *thirty-one*](#) the competent person shall—

- (a) check all safety devices installed to ensure that they are in proper working order; and
- (b) satisfy himself that the entire plant is in safe running order; and
- (c) examine the condition of the visible coil and vessels or chambers on the high pressure side of the plant.

(2) A report of the result of every examination carried out in terms of this section and of any repair or alteration carried out shall without delay be recorded, signed and dated in the Refrigerator Record Book by the competent person making such examination, repair or alteration, as the case may be.

(3) The discovery of any weakness or defect in a refrigeration, cooling, air conditioning or freezing plant which is likely to cause danger to any person, shall be reported forthwith to the user and immediate steps shall be taken by the user to remove such weakness or defect and to prevent danger to persons.

(4) The person who makes an examination in terms of [section *thirty-two*](#) shall forthwith record, sign and date the results of such examination in the Refrigerator Record Book, and certify therein that the masks are in order, or state the reasons for his failure so to certify and report the matter immediately to the user.

PART V

WELDING, FLAME CUTTING, SOLDERING, etc.

Protective clothing, insulation of leads and screening of work place

36 No user shall require or permit the operation of welding or flame cutting to be undertaken unless—

- (a) effective protection is provided, and used, for the eyes, and where necessary for the face, hands, feet, legs and clothes against heat, incandescent particles and dangerous radiations;
- (b) leads and electrode holders are effectively insulated;
- (c) the workplace is effectively partitioned off where practicable.

Ventilation of work area

37 No user shall require or permit the operation of welding or flame cutting to be undertaken in confined spaces unless—

- (a) effective ventilation is available and maintained; or
- (b) masks maintaining a supply of fresh air are supplied and used by the-operator.

Precautions in hazardous situations

38 (1) No user shall require or permit electric welding to be undertaken in wet or damp situations, in closely confined spaces, inside metal vessels or in general in contact with large masses of metal unless—

- (a) the insulation of the leads is in a sound condition;
- (b) the electrode holder is completely insulated to prevent accidental contact with current carrying parts;
- (c) the operator is completely insulated by means of boots, gloves or rubber mats; and
- (d) at least one other person who has been properly instructed remains in attendance during the operation:

Provided that the provisions of this subsection shall not apply to a welding process where, the maximum voltage to earth does not exceed 24 volts.

(2) No user shall require or permit flame cutting to be undertaken in closely confined spaces unless at least one other person remains in attendance during the operation.

(3) No user shall require or permit the operation of welding or flame cutting to be undertaken in any elevated position unless suitable railings, safety belts, life lines or other effective means are provided to prevent persons from falling.

(4) No user shall require or permit welding, flame cutting, soldering and similar work to be undertaken to tubes, tanks, drums, vessels and the like when these—

(a) are completely closed, unless a rise in internal pressure is not material to safety;

(b) contain substances which, under the action of heat, may-

(i) ignite or explode; or

(ii) react to form dangerous or poisonous substances;

unless a suitably qualified person has certified in writing, after examination, that these dangers have been removed by opening, ventilating, purging with water, steam or by other effective means.

PART VI

WOODWORKING MACHINERY

Circular saws

39 (1) No user shall require or permit any person to operate a power-driven circular saw—

(a) at a speed in excess of the manufacturer's rated maximum speed for the saw blade, or in the absence of such rating at a peripheral speed of more than 3000 metres per minute;

(b) which is in any way damaged or the teeth of which are not regular or correctly sharpened and set.

(2) The user shall cause every circular saw to be guarded as follows—

(a) behind and in direct line with the saw there shall be a riving knife, which shall have a smooth surface, shall be strong, rigid and easily adjustable and shall also conform to the following conditions—

(i) the edge of the knife nearest the saw shall be in the form of an arc of a circle, having a radius not exceeding the radius of the largest saw used on the bench by more than 3,5 millimetres;

(ii) the knife shall be maintained as close as practicable to the saw, having regard to the nature of the work being done at the time, and, at the level of the bench table, the distance between the front edge of the knife and teeth of the saw shall not exceed 12 millimetres;

(iii) for a saw of a diameter of less than 630 millimetres, the knife shall extend upwards from the bench table to within 12 millimetres of the top of the saw, and for a saw of a diameter of 630 millimetres or over, shall extend upwards from the bench table to a height of at least 220 millimetres:

Provided that where the nature of the work is such that the provisions of this paragraph cannot be complied with, a suitable anti-kick back device shall be fitted;

(b) the saw blade below the bench table shall be effectively guarded;

(c) the part of the saw above the table shall be covered by a substantial guard which shall cover the saw at all times to at least the depth of the teeth and which shall be so arranged as to adjust automatically to the thickness of, and to remain in contact with, the material being cut:

Provided that-

(i) where such a guard is impracticable, the top of the saw shall be covered by a strong manually adjustable guard with a side flange at the side of the saw opposite the fence, which shall be kept so adjusted as to extend to a point as low as practicable to the cutting point of the saw and with the flange extending below the roots, of the teeth of the saw;

(ii) in the case of a break-down saw the guards shall be such as effectively to cover the top of the saw blade;

(d) tilting saws and tilting table circular saws shall be so arranged that the adjustment of the riving knife and the guard remains effective with any position of the saw or table.

(3) A user shall cause every swing or pendulum saw which is moved towards the material—

(a) to be guarded so that only the cutting portion of the saw is exposed; and

(b) to be kept away automatically from the cutting position by means of a balance weight or other suitable appliance.

(4) A user shall cause every portable power-driven circular saw to be fitted with a fixed guard above the slide, or shoe, which shall be such as to cover the saw to at least the depth of the teeth and shall automatically cover the portion of the saw below the slide, or shoe, whilst actual sawing is not being carried out.

(5) A user shall cause a suitable push stick to be kept available for use at the bench of every circular saw, which is fed by hand, to enable the work to be carried out without danger to persons.

(6) A user shall provide suitable mechanical apparatus for holding rough timber which is to be slabbed by circular saw.

(7) A user shall provide an efficient guard for the automatic feed rollers of every circular saw.

Band saws and band knives

40 A user shall cause—

(a) all moving parts of every band saw and band knife to be completely enclosed, except that part of the blade between, the table and the top guide; and

(b) every band saw and band knife to be fitted with an adjustable guard which shall be kept so adjusted as to expose only the working portion of the blade.

Planing machines

41 (1) No user shall require or permit any planing machine which is not mechanically fed, to be used for over-hand planing unless it is fitted with a cylindrical cutter-block.

(2) No user shall require or permit any planing machine which is not mechanically fed, to be used for planing overhand any piece of wood less than 300 millimetres in length, unless a safe holder is used for such piece of wood:

Provided that this shall not apply to the operation of planing edges of flat pieces of wood.

(3) A user shall fit every planing machine used for overhand planing with a bridge guard capable of covering the full length and breadth of the cutting slot in the bench, and so constructed as to be easily adjusted in a vertical and horizontal direction.

(4) A user shall provide an efficient guard for the feed roller of every planing machine used for thicknessing, except the combined machine for overhand planing and thicknessing.

Moulding machines

42 A user shall cause—

(a) the cutter of every vertical spindle moulding machine to be fitted, when practicable, with an efficient guard, having regard to the nature of the work which is being performed;

(b) for such work as cannot be performed with an efficient guard for the cutter, the wood being moulded on a vertical spindle moulding machine, shall, if practicable, be held in a jig or holder of such construction as to ensure safe working;

(c) a suitable spike or push stick to be kept available for use at the bench of every spindle moulding machine.

Mortising machines

43 A user shall cause the chain of every mortising machine to be fitted with a guard which shall enclose the cutters as far as practicable.

Sanding machines

44 A user shall cause every—

(a) drum sanding machine to be fitted with efficient guards so arranged as to enclose the revolving drum completely, other than such portion as is necessary to be uncovered for the application of the work;

(b) disc sanding machine to be fitted with suitable guards which shall completely enclose the periphery and back of the sanding disc and that portion of the working face of the disc under the table;

(c) belt sanding machine to be fitted with guards at the trap points, where the sanding belt runs on to its pulleys and any section of the belt not used for sanding, to be effectively enclosed.

PART VII

PRECAUTIONS IN DANGEROUS OPERATIONS

45 No user shall permit or require filling or exhausting operations which are likely to cause the dangerous explosion or disintegration of any vessel, container or article unless suitable screens, cages or other effective means are provided to prevent injury to persons.

Chapter 14:08 Factories and Works (Machinery) Regulations, 1976

SCHEDULE

FORMS

Forms

F.M. 1. Notice to be Posted by Users of **Woodworking Machinery.**

F.M. 2. Notice to be Posted by Users of **Machinery.**

Form F.M. 1

ZIMBABWE

**FACTORIES, AND WORKS ACT [CHAPTER 14:08]
FACTORIES, AND WORKS (MACHINERY) REGULATIONS, 1976**

[\(Section 18\)](#)

**NOTICE TO BE POSTED UP BY USERS OF
WOODWORKING MACHINERY**

1. All exposed parts of machinery such as belts, pulleys, gears and shafts must be securely guarded or fenced and no person shall trespass within such guards or fences.
2. The cleaning, oiling, repairing or adjusting of machinery in motion is prohibited.
3. Persons working with or near moving machinery must not wear loose outer clothing.
4. Driving-belts must not be thrown off or put on while the machinery is in motion.
5. Any employee who notices anything which is liable to cause danger to persons must report it at once to the person in charge.

6. The floors around all machines must be kept in a good and level condition and as far as possible clear of all materials and waste.
7. Every circular-saw shall be fitted with a guard and riving knife, as prescribed in the regulations, and the operator is responsible that the guard and riving knife are kept in proper adjustment as far as the class of work will permit.
8. Cylindrical cutter-blocks and bridge-guards must be fitted to all planing machines which are not mechanically fed. The operator is responsible for having the bridge-guard properly adjusted both vertically and horizontally to suit the dimensions of the wood being planed.
9. Whenever possible an efficient guard should be used on a spindle moulding machine, but when this is impracticable a false fence should be attached to the existing fence, or the wood to be moulded should be held in a jig or holder.
10. Persons in charge of woodworking machinery are required personally to instruct inexperienced employees working under them, concerning the dangers associated with the operation of such machinery and the safety precautions which must be observed.
11. Any accident must be reported immediately to the employer.
12. Any further information may be obtained from the Chief Inspector of Factories, P.O. Box 8433, Causeway, ZIMBABWE.

Form F.M. 2

ZIMBABWE

FACTORIES. AND WORKS ACT [*CHAPTER 14:08*] FACTORIES, AND WORKS (MACHINERY) REGULATIONS, 1976

[\(Section 18\)](#)

NOTICE TO BE POSTED UP BY USERS OF MACHINERY

- 1 All exposed parts of machinery such as belts, pulleys, gears and shafts must be securely guarded or fenced and no person shall trespass within such guards or fences.
- 2 An employer is required by law to provide safety devices in connexion with machinery wherever possible and it is an offence for any person to interfere with such safety devices or to fail to use them.
- 3 The cleaning, oiling, repairing or adjusting of machinery in motion is prohibited.
- 4 Persons working with or near moving machinery, must not wear loose outer clothing and are required to wear the caps or nets provided by the employer to confine their hair.
- 5 Driving-belts must not be thrown off or put on while the machinery is in motion.
- 6 Any employee who notices anything unusual in connexion with the machinery which may be a danger to persons, shall report it at once to the person in charge.
- 7 Persons in charge of machinery are required personally to warn all employees, who work with or near moving machinery, of the dangers which must be avoided in connexion with such machinery.
- 8 No person shall take intoxicating liquor on to premises where machinery is used and no person under the influence of intoxicating liquor or a drug shall be allowed to enter such premises.
- 9 Any accident must be reported immediately to the employer.
- 10 Any further information may be obtained from the Chief Inspector of Factories, P.O. Box 8433, Causeway, Zimbabwe.

