GOVERNMENT OF MEGHALAYA

MEGHALAYA FACTORIES RULES

FOR THE YEAR 1980

THE MEGHALAYA FACTORIES RULES, 1980

CHAPTER I

PRELIMINARY

1. **Short title, extent and commencement**—(1) These rules may be called the Meghalaya Factories Rules, 1980.
   (2) They shall extend to the whole of Meghalaya.
   (3) They shall come into force at once.

2. **Definitions**—In these Rules unless there is anything repugnant in the subject or context—
   (a) "*Act*" means the Factories Act, 1948.
   (b) "*Appendix*" means an appendix appended to these Rules.
   (c) "*Artificial* humidification" means the introduction of moisture into the air of a room by any artificial means whatsoever, except the unavoidable escape of stream or water vapour into the atmosphere directly due to a manufacturing process :

   Provided that the introduction of air directly from outside through moistened mats or screens placed in opening at times when the temperature of the room is 26.5 degrees Centigrade or more, shall not be deemed to be artificial humidification.

   (d) "*Belt*" includes any driving strap or rope.
   (e) "*Degrees*" (of temperature) means degrees on the Centigrade scale.
   (f) "*District Magistrate*" includes such other official as may be appointed by the State Government in that behalf.
   (g) "*Fume*" includes gas or vapour.
   (h) "*Health Officer*" means the Municipal Health Officer or District Health Officer or such other official as may be appointed by the State Government in that behalf.
   (i) "*Hygrometer*" means an accurate wet and dry bulb hygrometer conforming to the prescribed conditions as regards construction and maintenance.
   (j) "*Maintained*" means maintained in an efficient state, in efficient working order and in good repair.
   (k) "*Manager*" means the person responsible to the occupier for the working of the factory for the purposes of the Act.
   (l) All words and expressions used in these rules but not defined shall have the same meanings as and when used in the Act.

3. **Submission of plan**—The State Government or the Chief Inspector of Factories may require for the purpose of the Act, submission of plans of any factory which was either in existence on the date of commencement of the Act or which has not been constructed or extend since then. Such plans shall be drawn to the scale showing—
   (a) The site of the factory an immediate surroundings including adjacent buildings and other structures, roads, drains, etc.;
   (b) The plan, elevation and necessary cross section of the factory buildings indicating all relevant details relating to natural lighting, ventilation and means of escape in case of fire and the position of the plant and machinery, aisles and passage ways; and

(c) Such other particulars as the State Government or the Chief Inspector, as the case may be, may require.

4. **Approval of plans**—(1) No site shall be used for the location of a factory or no building in a factory be constructed, reconstructed, extended or taken into use as a factory or part of a factory, or any other extension of plant of machinery carried out in a factory unless previous permission in writing is obtained from the State Government or the Chief Inspector.

(2) Application for such permission shall be made in Form No, 1 which shall be accompanied by the following documents:

(a) A flow chart of the manufacturing process supplemented by a brief description of the process in its various stages;

(b) Plans in duplicate drawn to scale showing—

i) The site of the factory and immediate surroundings including adjacent buildings and other structures, roads, drains, etc.; and

ii) The plan, elevation and necessary cross-section to the various buildings, indicating all relevant details relating to natural lighting ventilation and means of escape in case of fire. The plans shall also clearly indicate the position of the plant and machinery, aisles and passage ways; and

(c) Such other particulars as the Chief Inspector may require.

(3) If the Chief Inspector is satisfied that the plans are in consonance with the requirements of the Act, he shall, subject to such conditions as he may specify, approve them may signing and returning to the applicant one copy of each plan; or he may call of such other particulars as he may require to enable such approval to be given.

5. **Application for registration and grant of licence**--The occupier of every factory, shall submit to the Chief Inspector an application in Form No. 2 for the registration of the factory of these Rules.

6. Grant of licence—(1) A licence to work a factory shall be granted by the Chief Inspector in Form No. 3 prescribed for the purpose and on payment of the fees specified in the Schedule hereto.

(2) Every licence granted or renewed under this Chapter shall remain in force up to the 31st of December of the year for which the licence is granted or renewed.

SCHEDULED A

Scale of fees payable for Licence and annual renewal of Licence for Factories defined in Section 2 (m) of the Factories Act, 1948 other than Electricity Generating (or Transforming) stations

	Maximum number of persons to be employed during the year							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quantity of K.W. in stalled (Max. K.W.)	20	50	100	250	500	750	1000	Above 1000
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
NIL	25	60	125	200	300	450	600	850
10 K.W.	100	175	275	425	625	825	1,150	1,825
50 K.W.	175	275	425	625	825	1,150	1,825	2,700
100 K.W.	275	425	625	825	1,150	1,825	2,700	3,350
250 K.W.	425	625	825	1,150	1,825	2,700	3,350	4,025
500 K.W.	625	825	1,125	1,825	2,700	3,350	4,025	4,700
1,000 K.W.	825	1,150	1,825	2,700	3,350	4,025	4,700	5,375
Above 1,000 K.W.	2,025	2,700	3,350	4,025	4,700	5,375	6,050	6,700

SCHEDULED B

Scale of fees payable for Licence and annual renewal of Licence for Electricity Generating (or Transforming) Stations

Total installed capacity of the generating (or transforming) plant (in K.W)	Number of workers to be employed	Fees payable.
		Rs.
50 K.W. or less	10 or above	30
Over 50 K.W. not over 100 K.W.	Do	75
Over 100 K.W. not over 150 K.W.	Do	115
Over 150 K.W. not over 300 K.W.	Do	150
Over 300 K.W. not over 750 K.W.	Do	225
Over 750 K.W. not over 1,000 K.W.	Do	340
Over 1,000 K.W. not over 5,000 K.W.	Do	675
Over 5,000 K.W. not over 10,000 K.W.	Do	1.125
Over 10,000 K.W. not over 50,000 K.W.	Do	1,875
Over 50,000 K.W.	Do	2,250

7. **Amendment of licence**—(1) A licence granted under Rule 6 may be amended by the Chief Inspector.

(2) A licence who desires to have his licence amended shall submit it to the Chief Inspector with an application stating the nature of the amendment and reasons therefore.

(3) The fee for the amendment of a licence shall be ten rupees plus the amount (if any) by which the fee that would have been payable if the licence had originally been issued in the amended form, exceeds the fee originally paid for the licence.

Provided that the occupier of premises in use as a factory on the date of the commencement of these rules shall submit such application within 30 days from the date of the commencement of these rules.

8. **Renewal of licence**—(1) A licence may be renewed by the Chief Inspector.
(2) Every application for the renewal of a licence shall be in Form No. 2 in duplicate, and shall be made not less than two months before the date on which the licence expires, and, if the application is so made, the premises shall be held to be duly licenced until such date as the Chief Inspector renews the licence.
(3) The same fee shall be charged for the renewal of a licence as for the grant thereof:
Provided that if the application for renewal is not received within the time specified in sub-rule (2), the licence shall be renewed only on payment of a fee 25 percent in excess of the fee ordinarily payable for the licence.

9. **Transfers of licence**—(1) The holder of a licence may, at any time before the expiry of the licence, apply for permission to transfer licence to another person.
(2) Such application shall be made to the Chief Inspector who shall, if he approves of the transfer, enter upon the licence under his signature, an endorsement to the effect that the licence has been transferred to the person named.
(3) A fee of ten rupees shall be charged on each such application.

10. **Procedure on death or disability of licensee**—If a licensee dies or becomes insolvent, the person carrying on the business of such licensee shall not be liable to any penalty under the Act for exercising the powers granted to the licensee by the licence during such time as may reasonably be required to allow him to make an application for the amendment of the licence under Rule 7 in his own name for the unexpected portion of the original licence.

11. **Loss of Licence**—Where a licence granted under these Rules is lost or accidentally destroyed, a duplicate may be granted on payment of a fee of rupees ten.

12. **Payment of fees**—(1) Every application under these Rules shall be accompanied by a treasury receipt showing that the appropriate fee has been paid into the local treasury under the head of account 08—Labour and Employment—E—Fees realised under the Factories Act, 1948:

Provided that the appropriate fee may alternatively be paid by a crossed cheque or a bank draft on any nationalized bank or by a postal order drawn in favour of the Chief Inspector.

(2) If an application for the grant, renewal or amendment of a licence is rejected, the fee paid shall be refunded to the applicant.

13. **Prohibition of use of a premises as factory without a valid licence**—An occupier shall not use any premises as a factory or carry on any manufacturing process in a factory unless a licence has been issued in respect of such premises and is in force for the time being:

Provided that if a valid application for grant of licence or renewal of licence has been submitted and the required fee has been paid the premises shall be deemed to be fully licensed until such date as the Chief Inspector grants or renews the licence or refuses in writing to grant or renew the licence.

COMMENTS

Rules 3 to 13 have been prescribed Section 6 (c) of the Act.

14. **Notice of occupation**—The notice of occupation shall be in Form No. 2

COMMENTS

Form No. 2 has been prescribed Section 7 (1) of the Act.

15. **Notice of change of manager**—The notice of change of manager shall be in Form No. 4

COMMENTS

Form No. 4 has been prescribed under sub-section (4) of Section 7 of the Act.

CHAPTER II
INSPECTING STAFF

16. **Qualification of an Inspector**—No person shall be appointed as an Inspector for the purpose of the Act unless he possesses of the Act unless he possesses the qualifications as hereunder—

(a) He must not be less than 23 years or more than 35 years of age;

(b) He must have—

i) Had a good general education up to the pre-degree standard of a recognised university;

ii) Secured a degree or diploma equivalent to a degree of a recognised university, in any branch of Engineering, Technology or Medicine and preferably with practical experience of at least two years in a workshop or a manufacturing concern of good standing and in the case of Medical Inspector an experience of at least two years in a public hospital or factory, medical department or alternatively a diploma in industrial medicine; and

(c) Where for a particular, post, special knowledge to deal with special problems is required, the Government may, in addition to the basic qualifications, prescribe appropriate qualifications for such a post.

COMMENTS

This rule has been prescribed Section 8 (1) of the Act.

17. **Powers of Inspector**—An Inspector shall, for the purpose of the execution of the Act, have power to do all or any of the following things, that is to any—

(a) To photograph any worker, to inspect, examine, measure, copy, photograph, sketch or test, as the case may be, any building or room, any plant, machinery, appliance or apparatus, any register or document, or anything provided for the purpose of securing the health, safety or welfare of the workers employed in a factory;

(b) In the case of an Inspector who is duly qualified medical practitioner, to carry out such medical examinations as may be necessary for the purposes of his duties under the Act; and

(c) To prosecute, conduct or defend before a court any complaint or other proceeding arising under the Act or in discharge of his duties as an Inspector.

COMMENTS

This rule has been prescribed Section 9 of the Factories Act.

18. **Duties of Certifying Surgeons**—(1) For the purposes of the examination and certification of young persons who wish to obtain certificates of fitness, the Certifying Surgeon shall arrange a suitable time and place for the attendance of such persons, and shall give previous notice in writing of such arrangements to the manager of factories situated within the local limits assigned to him.

(2) The Certifying Surgeons shall issue his certificates in Form No. 5. The foil and counterfoil shall be filled in and the left thumb-impression of the person in whose name the certificate is granted shall be taken on them. On being satisfied as to the correctness of the entries made therein and of the fitness of the person examined, he shall sign the foil and initial the counterfoil and shall deliver the foil to the person in whose name the certificate is granted. The foil so delivered shall be certificate of fitness granted under Section 69. All counterfoils shall be kept by the Certifying Surgeon for a period of a least two years after the issue of the certificate.

(3) The Certifying Surgeon shall, upon request by the Chief Inspector, carry out such examination and furnish him with such report as he may indicate, for any factory or class or description of factories where—

(a) Cases if illness have occurred which it is reasonable to believe one due to the nature of the manufacturing process carried on, or other conditions of work prevailing therein, or

(b) By reason of any change in the manufacturing process carried on, or in the substances used therein, or by reason of the adoption of any new manufacturing process or of any new substance for use in a manufacturing process, there is a likelihood of injury to the health of workers employed in that manufacturing process, or

(c) Young person are, or are about to be, employed in any work which is likely to cause injury to their health.

(4) For the purpose of the examination of persons employed in process covered by the rules relating to dangerous operations, the Certifying Surgeon shall visit the factories within the local limits assigned to him at such intervals as are prescribed by the rules relating to such dangerous operations.

(5) At such visits the Certifying Surgeon shall examine the persons employed in such processes and shall record the results of his examination in a Register known as the Heath Register (Form No. 6) which shall be kept by the factory manager and produced to the Certifying Surgeon at each visit.

(6) If the Certifying Surgeon finds as a result of his examination that any person employed in such process is no longer fit for medical reasons to work in that process, he shall suspend such person from working in that process for such time as he may think fit and no person after suspension shall be employed in that process without the written sanction of the Certifying Surgeon in the Health Register.

(7) The manager of a factory shall afford to the Certifying Surgeon facilities to inspect any process in which any person is employed or is likely to be employed.

(8) The manager of a factory shall provide for the purpose of any medical examination which the Certifying Surgeon wishes to conduct at the factory (for his exclusive use on the occasion of an examination) a room which shall be properly cleaned and adequately ventilated and lighted and furnished with a screen, a table (with writing materials) and chairs.

COMMENTS

For this rule see sub-section (4) of Section 10 of the Factories Act.

CHAPTER III

HEALTH

19. **Record of white-washing, etc**.—The record of dates on which white-washing, colour washing, varnishing, etc., are carried out shall be entered in a Register maintained in Form No. 7

COMMENTS

For this rule see Section 17(1) of the Act.

20. Cleanliness of walls and ceilings—(1) Clause (d) of sub-section (1) of Section 11 of the Act shall not apply to the class or description of factories or parts of factories specified in the Schedule hereto:

Provided that they are kept in a clean state by washing, sweeping, brushing, dusting, vacuum-cleaning or other effective means;

Provided further that the said Clause (d) shall continue to apply—

(a) As respects factories or parts of factories specified in Part A of the said Schedule, to work-rooms in which the amount of cubic space allowed for every person employed in the room is less 14.2 cubic meters;

(b) As respects factories or parts of factories specified in Part B of the said Schedule, to work rooms in which the amount of cubic space allowed for every person employed in the room is less than 70.8 cubic meters;

(c) To engine-houses, fitting shops, lunch-rooms, canteens, shelters, crèches, cloak-rooms, rest-rooms and wash places; and

(d) To such parts of walls, sides and tops of passage and staircases as are less than 6 meters above the floor or stair.

(2) If it appears to the Chief Inspector that any part of a factory, to which by virtue of sub-rule (1) any of provisions of the said Cl. (d) do not apply, or apply as varied by sub-rule (1), is not being kept in a clean state, he may, by written notice, require the occupier to white-wash or colour-wash, wash, paint or varnish the same, and in the event of the occupier failing to comply with such requisition within two months from the date of the notice, sub-rule (1) shall cease to apply to such part of a factory, unless, the Chief Inspector otherwise determines.

SCHEDULE

PART A

1. Blast furnaces
2. Brick and tile works in which unglazed brick or tiles are made.
3. Cement works.
4. Chemical works.
5. Copper mills.
6. Gas works.

7. Iron and Steel mills.
8. Stone, slate and marble works.
9. The following parts of factories:
   (a) Rooms used only for the storage of articles.
   (b) Rooms in which the walls or ceilings consist of galvanised iron, glazed bricks, glass, slate, asbestos, bamboo, thatch.
   (c) Parts in which dense team is continuously evolved in the process.
   (d) Parts in which pitch, tar or like material is manufactured or is used to a substantial extent, except in brush works.
   (e) Parts of a glass factory known as the glass house.
   (f) Rooms in which graphite is manufactured or is used to a substantial extent in any process.
   (g) Parts in which coal, coke, oxide of iron, ore, lime or stone is crushed or grounds.
   (h) Parts of walls, partitions, ceilings or tops of rooms which are at least 6 meters above the floor.
   (i) Ceilings or tops of rooms in print works bleach works or dye works, with the exception of finishing rooms or warehouses.
   (j) Inside Walls in tanneries below a height of 1.5 meters from the ground floor level where a wet process is carried on.

PART B

1. Coach and motor body works.
2. Electric generating or transforming stations.
3. Engineering works.
4. Factories in which sugar is refined or manufactured.
5. Foundries other than foundries in which brass casting is carried on.
6. Gun factories.
7. Ship-building works.
8. Those parts of factories where unpainted or unvarnished wood is manufactured.

For this rule see Section 11, sub section (2) of the Factories Act.

21. **Disposal of trade-wastes and effluents**—(1) In the case of a factory where the drainage system is proposed to be connected to the public sewerage system, prior approval of the arrangement made shall be contained from the local authority.

(2) In the case of a factory situated in a place where no public sewerage system exists, prior approval of the arrangement made for the disposal of trade-wastes and effluents shall be obtained from the Public Health authorities or such authority as the State Government may appoint in this behalf.

COMMENTS

This rule has been formed under sub-section (2) of Section 12 of the Act.

22. **Ventilation and temperature**—(1) Limits of temperature and air movement—In any factory the maximum wet-bulb temperature of air in a workroom at a height of 1.5 meters above the floor level shall not exceed 30 degrees centigrade and adequate air movement of at least 30 meters per minute shall be provided; and in relation to dry-bulb temperature the wet bulb temperature in the workroom at the said height shall not exceed that shown in the Schedule annexed hereto, or as regards a dry-bulb reading intermediate between the two dry-bulb readings that specified in relation to the higher of these two dry-bulb readings;

SCHEDULE

Dry-bulb temperature	Wet-bulb temperature
30^0C to 34^0C	29^0 C
35^0C to 39^0C	28.5^0 C
40^0C to 44^0C	28^0 C
45^0C to 47^0C	27.5^0 C

Provided that if the temperature measured with a thermometer inserted in a hollow glove of 15 centimetres diameter coated mat black outside and kept in the environment for not less than 20 minutes exceeds the dry-bulb temperature of air, the temperature so recorded by the globe thermometer shall be taken in place of the dry-bulb temperature:

Provided further that when the reading of the wet-bulb temperature outside in the shade exceeds 27 degrees centigrade, the value of the wet-bulb temperature allowed in the Schedule for a given dry-bulb temperature may be correspondingly exceeded to the same extent:

Provided further that this requirement shall not apply in respect of factories covered by Section 15 of the Act and in respect of factories where the nature of work carried on involves production of excessively high temperature referred to in Clause (ii) of sub-section (1) to which workers are exposed for short periods of time into exceeding one hour followed by an interval of sufficient duration in thermal environments not exceeding those otherwise laid down in this rule:

Provided further that the Chief Inspector, having due regard to the health of the workers, may in special and exceptional circumstances, by an order in writing, exempt any factory or part of a factory from the foregoing requirements, in so far as restricting the thermal conditions within the limits laid down in the Schedule are concerned to the extend that he may consider necessary subject to such conditions as he may specify.

(2) *Provision of thermometers*—(a) If it appears to the Inspector that in any factory, the temperature of air in a work-room is sufficiently high and is likely to exceed the limits prescribed in sub-rule (1), may serve on the on the manager of the factory an order requiring him to provide sufficient number of whirling hygrometers or any other type of hygrometers and direct that the dry-bulb and wet-bulb readings in each such workroom shall be recorded at such positions as approved by the Inspector twice during each working shift by a person especially nominated for the purpose by the manager and approved by the Inspector.

(b) If the Inspector has reason to believe that a substantial amount of heat is added inside the environment of a workroom by radiation from walls, roof or other solid surroundings, he may serve on the managers of the factory an order requiring him to provide one or more globe thermometers referred to in the first proviso in sub-rule (1) and further requiring him to place the globe thermometers at place specified by him and keep a record of the temperatures in a suitable register.

(3) Ventilation—(a) In every factory the amount of ventilating openings in a workroom below the caves shall, except where mechanical means of ventilation as required by Clause (b) below are provided, be of an aggregate area of not less than 15 per cent of the floor area and so located as to afford a continued supply of fresh air:

Provided that the Chief Inspector may relax the requirements regarding the amount of ventilating openings if he is satisfied that having regard to the location of the factory, orientation of the workroom, prevailing winds, roof height and the nature of manufacturing process carried on, sufficient supply of fresh air into the workroom is afforded during most part of the working time:

Provided further that this requirement shall not apply in respect of work-room of factories—

i) Covered by Section 16 ; or

ii) In which temperature and humidity are controlled by refrigeration.

(b) Where in any factory owing to special circumstances such as situation with respect to adjacent buildings and height of the buildings with respect of floor space, the requirement of ventilation opening under Clause (a) of this sub-rule cannot be complied with or in the opinion of the Inspector the temperature of air in a workroom is sufficiently high and is likely to exceed the limits prescribed in sub-rule (1), he may serve on the manager of the factory an order requiring him to provide additional ventilation either by means of roof ventilations or by mechanical means.

(c) The amounts of fresh air supplied by mechanical means of ventilation in an hour shall be equivalent to at least six times the cubic capacity of the workroom and shall be distributed evenly throughout the workroom without dead air pockets or under draughts caused by high inlet velocities.

(d) In regions wherein summer (15th March-15th July) dry-bulb temperature of outside air in the shade during most part of the day exceed 35 degrees centigrade and simultaneous wet bulb temperatures are 25 degrees centigrade or below and in the opinion of the Inspector the manufacturing process carried on in the workroom of a factory permits thermal environments with relative humidity of 50 per cent or more, the Inspector may serve on the manager of the factory an order to have sufficient supply of outside air for ventilation cooled by passing it through water sprays either by means of unit type evaporative air coolers (desert coolers) or where supply of outside air is provided by mechanical means through ducts in a plenum system, by means of central air washing plants.

COMMENTS

This rule has been prescribed under Section 13 of the Act.

23. **When artificial humidification not allowed**—There shall be no artificial humidification in any room of a cotton spinning or weaving factory—

(a) By the use of steam during any period when the dry bulb temperature of that room exceeds 29.5 degrees centigrade; and

(b) At any time when the wet-bulb reading of the hygrometer is higher bulb reading of the hygrometer at that time, or as regards a dry bulb reading intermediate between any low dry bulb readings indicated consecutively in the Schedule when dry bulb reading does not exceed the wet bulb reading to the extent indicated in relation to the lower of these two dry bulb readings:

SCHEDULE

Dry bulb	Wet bulb	Dry bulb	Wet bulb	Dry bulb	Wet bulb
1	2	3	4	5	6
15.5	14.5	25.0	24.0	34.5	30.0
16.0	15.0	25.5	24.5	35.0	30.5
16.5	15.5	26.0	25.0	35.5	31.0
17.0	16.0	26.5	25.5	36.0	31.0
17.5	16.5	27.0	26.0	36.5	31.5
18.0	17.0	27.5	26.0	37.0	31.5
18.5	17.5	28.0	26.5	37.5	31.5
19.0	18.0	28.5	27.0	38.0	32.0
19.5	18.5	29.0	27.0	38.5	32.0
20.0	19.0	29.5	28.0	39.0	32.0
20.5	19.5	30.0	28.0	39.5	32.5
21.0	20.0	30.5	28.5	40.0	32.5
21.5	20.5	31.0	28.5	40.5	33.0
22.0	21.0	31.5	29.0	41.0	33.0
22.5	21.5	32.0	29.0	41.5	33.0
23.0	22.0	32.5	29.5	42.0	33.0
23.5	22.5	33.0	29.5	42.5	33.0
24.0	23.0	33.5	29.5	43.0	33.5
24.5	23.5	34.0	30.0	43.5	33.5

Provided, however, that Clause (b) shall not apply when the difference between the wet bulb temperature as indicated by the hygrometer in the department concerned and the wet bulb temperature taken with a hygrometer outside in the shade is less than 2 degrees.

24. **Provision of hygrometer**—In all departments of cotton spinning and weaving mills wherein artificial humidification is adopted, hygrometers shall be provided and maintained in such positions as are approved by the Inspector. The number of hygrometers shall be regulated according to the following scale:

(a) *Weaving department*—One hygrometer for departments with less than 500 looms, and one additional hygrometer for each room of less than 85,00 cubic meters capacity and one extra hygrometer for each 5,670 cubic meters or part thereof, in excess of this;

(b) *Other departments*—One additional hygrometer shall be provided and maintained outside each cotton spinning and weaving factory wherein artificial humidification is adopted, and in a position approved by the Inspector for taking hygrometer shade readings.

25. **Exemption from maintenance of hygrometers**—When the Inspector is satisfied that the limits of humidity allowed by the Schedule to Rule 23 are never exceeded, he may, for any department other than the weaving department, grant exemption from the maintenance of the hygrometer. The Inspector shall record such exemption in writing.

26. **Copy of Schedule to Rule 23 to be affixed near every hygrometer**—A legible copy of the Schedule to Rule 23 shall be affixed near each hygrometer.

27. **Temperature to be recorded at each hygrometer**—At each hygrometer maintained in accordance with Rule 24, correct wet and dry bulb temperatures shall be recorded thrice daily during each working day by competent persons nominated by the Manager and approved by the Inspector.

The temperature shall be taken between 7 a.m. and 9 a.m., between 11 a.m. and 2 p.m. (but not in the rest interval) and between 4 p.m. and 5.30 p.m. In exceptional circumstances, such additional readings and between such hours, as the Inspector may specify shall be taken. The temperatures shall be entered in a Humidity Register in the Prescribed Form No.8, maintained in the factory. At the end of each month the persons who have taken the readings shall sign the Register and certify the correctness of the entries. The Register shall always be available for inspection by the Inspector.

28. **Specifications of hygrometer**—(1) Each hygrometer shall comprise of two mercurial thermometers of wet bulb and dry bulb of similar construction and equals in dimensions, scale and divisions of scale. They shall be mounted on a frame with a suitable reservoir containing water.

(2) The wet bulb shall be closely covered with a single layer of muslin, kept wet by means of a wick attached to it and dropping into the water in the reservoir. The muslin covering and the wick shall be suitable for the purpose, clean and free from oil or grease.

(3) No part of the wet bulb shall be within 76 millimetres from the dry bulb or less than 25 millimetres from surface of the water in the reservoir and the water reservoir shall be below it, on the side of it away from the dry bulb.

(4) The bulb shall be spherical and of suitable dimensions and shall be freely exposed on all sides to the sir of the room.

(5) The bores of the stems shall be such that the position of the top of the mercury column shall be readily distinguishable at a distance of 60 centimetres.

(6) Each thermometer shall be graduated so that accurate readings may be taken between 10 and so degrees centigrade.

(7) Every degree from 10 degrees up to 50 degrees shall be clearly marked by horizontal lines on the stem, each fifth degree shall be marked by longer marks than the intermediate degrees and the temperature marked opposite each fifth degree, i.e., 10, 15,20,25,30,35,40,45 and 50.

(8) The marking as above shall be accurate, that is to say, at no temperature between 10 and 20 degrees shall be indicated readings, be in error by more than one-ninth of a degree.

(9) A distinctive number shall be indelibly marked upon the thermometer.

(10) The accuracy of each thermometer shall be certified by the National Physical Laboratory, Delhi or some competent authority appointed by the Chief Inspector and such certificate shall be attached to the Humidity Register.

29. **Thermometers to be maintained in efficient order**—Each thermometer shall be maintained at all time during the period of employment in efficient working order, so as to give accurate indications and in particular—

(a) The wick and the muslin covering of the wet bulb shall be renewed once a week;

(b) The reservoir shall be filled with water which shall completely renew once a day. The Chief Inspector may direct the use of distilled water or pure rain water in any particular null or mills in certain localities; and

(c) No water shall be applied directly to the wick or covering during the period of employment.

30. **Inaccurate thermometer not to be used without fresh certificate**—If an Inspector gives notice in writing that a thermometer is not accurate, it shall not, after one month from the date of such notice, be deemed to be accurate unless and until it has been re-examined as prescribed and a fresh certificate obtained which certificate shall be kept attached to the Humidity Register.

31. **Hygrometer not to be affixed to wall, etc., unless protected by wood**—(1) No hygrometer shall be affixed to a wall, pillar, or other surface unless protected there from by wood or other non-conducting material at least 12 millimetres in thickness and distant at least 25 millimetres from the bulb of each thermometer.

(2) No hygrometer shall be fixed at a height of more than 170 centimetres from the floor to the top of thermometer stem or in the direct draughts from a fan, window, or ventilating opening.

32. **No reading to be taken within 15 minutes of removal of water**—No reading shall be taken for record on any hygrometer within 15 minutes of the removal of water in the reservoir.

33. **Hot to introduce steam for humidification**—In any room in which steam pipes are used for the introduction of steam for the purpose of artificial humidification of the air the following provision shall apply :

(a) The diameter of such pipes shall not exceed 50 millimetres and in the case of pipes installed after 1st day of January, 1979 the diameter shall not exceed 25 millimetres.
(b) Such pipes shall be as short as is reasonably practicable;
(c) All hangers supporting such pipes shall be separated from the bare pipes by an efficient insulator not less than 12.50 millimetres in thickness;
(d) No uncovered jet from such pipe shall project more than 11.5 centimetres beyond the outer surface of any cover;
(e) The steam pressure shall be as low as practicable and shall not exceed 5 kilogram per square centimetres; and
(f) The pipe employed for the introduction of steam into the air in a department shall be effectively covered with such non-conducting materials, as may be approved by the Inspector in order to minimise the amount of heat radiated by them into the department.

COMMENTS

Rules 23 to 33 have been framed under Section 15 of the Factories Act.

34. **Lighting Application and commencement**—Subject as in these Rules provided, Rules 34 to 38 shall apply to factories in which persons are being regularly employed in a manufacturing process or processes for more than 48 hours a week, or in shifts; provided that nothing in these Rules shall be deemed to require the provision of lighting of specified standard in any building or structure so constructed that, in the opinion of the Chief Inspector it would not be reasonably practicable to comply with such requirement.

35. **Lighting of interior parts**—(1) The general illumination over those interior parts of a factory or where persons are regularly employed shall not be less than 65 lux measured in the horizontal plane at a level of 90 centimetres.

Provided that in any such parts in which the mounting height of the light source for general illumination necessarily exceeds 7.6 meters measured from the floor or where the structure off the room or the position or construction of the fixed machinery or plant prevents the uniform attainment of this standard, the general illumination at the said level shall be not be less than 22 lux and where work is actually being done the illumination shall be not less than 65 lux.

(2) The illumination over all other interior parts of the factory over which persons employed pass shall, when and where a person is passing be not less than suitable for the nature of the work.

(3) The standard specified in this rules shall be without prejudice to the provision of any additional illumination required to render the lighting sufficient and suitable for the nature of the work.

36. **Prevention of glare**—(1) Where any source of artificial light in the factory is less than 4.9 meters above floor level, no part of the light source or of the light fitting having a brightness greater than 1.55 candles per square centimetres (4.87 lamborts) shall be visible to persons whilst normally employed within 30 meters of the source, except where the angle of elevation from the eye to the source or part of the fitting, as the case may be, exceeds 20 degrees.

(2) Any local light, that is to say an artificial light designed to illuminate particularly the area or part of the area of work of a single operative or small group of operative working near each other, shall be provided with a suitable shade of opaque material to prevent glare or with other effective means which the light source is completely screened from the eyes of every person employed at a normal working place, or shall be so placed that part no such person is exposed to glare there from.

37. **Powers of Chief Inspector to exempt**—Where the Chief Inspector is satisfied in respect of any particular factory or part thereof or in respect of any description of work-room or process that any requirement of Rules 34 to 36 is inappropriate or is not reasonably practicable, he may, by order in writing, exempt the factory or part thereof, or description of work-room or process from such requirement to such extent and subject to such conditions as he may specify.

38. **Exemption from Rule 35**—(1) Nothing in Rule 35 shall apply to the parts of factories specified in Part 1 of the Schedule annexed hereto.

(2) Nothing in sub-rule (1) of Rule 35 shall apply to the factories or parts of factories respectively specified in Part II of the said Schedule.

SCHEDULE

PART I

Parts of factories in which light sensitive photographic materials are made or used in an exposed condition.

PART II

1. Cement works.
2. Works for the crushing and grinding of line-stone.
3. Gas works.
4. Coke oven works.
5. Electrical stations.
6. Flour Mills
7. Malting and breweries.
8. Parts of factories in which the following processes are carried on:
   (a) Concrete or artificial stone making.
   (b) Conversion or iron into steel.
   (c) Smelting of iron ore.
   (d) Iron or steel rolling.
   (e) Hot rolling or forging, tampering or annealing of metals.
   (f) Glass blowing and other working in molten glass.
   (g) Tar distilling.
   (h) Petroleum refining and blending.

COMMENTS

Rules 34 to 38 have been prescribed under Section 17 (4) of the factories Act.

39. **Quantity of drinking water**—The quantity of drinking water to be provided for the workers in every factory shall be at least 5 litres per worker employed in the factory and such drinking water shall be readily available at all times during working hours.

40. **Source of supply**—The water provided for drinking shall be supplied—
(a) From a public water supply system; or
(b) From any other source approved in writing by the Health Officer.

41. **Means of supply**—If drinking water is not supplied directly from taps either connected with public water supply system or any other water supply system of the factory approved by the Health Officer, it shall be kept in suitable vessels, respectable or thinks fitted with taps and having dust proof covers and placed on raised stands or platforms in shade and having suitable arrangement of drainage to carry away the spilt water. Such vessels, receptacles or tanks shall be kept clean and the water renewed at least once every day. All practicable measures shall be taken to ensure that the water is free from contamination.

42. **Cleanliness of well or reservoir**—(1) Drinking water shall not be supplied from any open well or reservoir unless it is so constructed, situated, protected and maintained as to be free from the possibility of pollution by chemical or bacterial and extraneous impurities.

(2) Where drinking water is supplied from such well or reservoir the water in it shall be sterilized once a week or more frequently if the Inspector by written order so requires, and the date on which sterilising is carried out shall be recorded.

Provided that this requirement shall not apply to any such well or reservoir if water therein is filtered and treated to the satisfaction of the Health Officer before it is supplied for consumption.

43. **Report from Health Officer**—The Inspector may, by order in writing, direct the manager to obtain, at such time or at such intervals as he may direct, a report from the Health Officer as to the fitness for human consumption of the water supplied to the workers, and in every case to submit to the Inspector a copy of such report as soon as it is received from the Health Officer.

44. **Cooling of water**—In every factory wherein more than two hundred and fifty workers are ordinarily employed—

(a) The drinking water supplied to the workers shall from the 15th April to the 15th September in every year, be cooled by ice or other effective method;

Provided that if ice is placed in the drinking water, the ice shall be clean and wholesome and shall be obtained only from a source approved in writing by the Health officer;

(b) The cooled drinking water shall be supplied in every canteen, lunch-room and rest-room and also at conveniently accessible points throughout the factory which for the purpose of these Rules shall be called "Water Centres";

(c) The water centres shall be sheltered from the weather adequately drained;

(d) The number of water centres to be provided shall be one "centre" for every 150 persons employed at any one time in the factory:

Provided that in the case of a factory where the number of persons employed exceeds 500 it shall be sufficient if there is one such "centre" as aforesaid for every 150 persons up to the first 500 and one for every 500 persons thereafter;

(e) Every "water centre" shall be maintained in a clean and orderly condition; and

(f) Every water centre shall be in charge of a suitable person who shall distribute the water, and such person should be provided with clean clothes while on duty:

Provided that this requirement shall not apply to any factory in which suitable mechanically operated drinking water refrigerating units are installed to the satisfaction of the Chief Inspector.

COMMENTS

Rules 39 to 44 have been framed under sub-section (4) of Section 18 of the factories Act.

45. **Latrine accommodation**—Latrine accommodation shall be provided in every factory on the following scale:

(a) Where females are employed, there shall be at least one latrine for every 25 females;
(b) Where males are employed, there shall be at least one latrine for every 25 males;

Provided that, where the number of males employed exceeds 100, it shall be sufficient if there is one latrine for every 25 males up to the first 100; and one for every 10 thereafter.

In calculating the number of latrines required under this rule any odd number of workers less than 25 or 50, as the case may be, shall be reckoned as 25 or 50.

46. **Latrines to conform to Public requirement**—Latrine, other than those connected with an efficient water-borne sewage system; shall comply with the requirements of the Public Health Authorities.

47. **Privacy of latrines**—Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

48. **Sign-boards to be displayed**—Where workers of both sexes are employed, there shall be displayed outside each latrine block a notice "For men Only" or "For women Only" as the case may be, in the language understood by majority of the workers. The notice shall also bear the figure of a man or woman, as the case may be.

49. **Urinal accommodation**—Urinal accommodation shall be provided for the use of male workers and there shall be at least one urinal of not less than 60 centimetres in length for every 50 Males:

Provided that where the number of males employed exceeds 500, it shall be sufficient if there is one urinal for every 50 males up to the first 500 employees, and one for every 100 thereafter.

In calculating the urinal accommodation required under this rule any old number of workers less than 50 or 100, as the case may be, shall be reckoned as 50 or 100.

50. **Urinals to conform to public health requirements**—Urinals, other than those connected with an efficient water-borne sewage system and urinals in a factory wherein more than two hundred and fifty workers are ordinarily employed shall comply with the requirements of the Public Health Authorities.

51. **Certain latrines and urinals to be connected to sewage system**—When any general system of underground sewage with an assured water supply for any particular locality is provided in a municipality, all latrines and urinals of a factory situated in such locality shall, if the factory is situated within 30 meters of an existing sewer, be connected with that sewerage system.

52. **White-washing, colour-washing of latrines and urinals**—The walls, ceilings and portions of every latrine and urinal shall be white-washed or colour washed and the white-washing or colour-washing shall be repeated at least once in every period of four months. The dates on which the white-washing or colour-washing is carried out shall be entered in the prescribed Register (Form No. 7):

    Provided that this rule shall not apply to latrines and urinals, the walls, ceilings or partitions of which are laid in glazed tiles or otherwise finished to provide a smooth, polished impervious surface and that they are washed with suitable detergent and disinfectants at least once in every period of four months.

53. **Construction and maintenance of drains**—All drains carrying waste or sullage shall be constructed in masonry or other impermeable material and shall be regularly flushed and the effluent disposed of by connecting such drains with a suitable drainage line:

    Provided that, where there is no such drainage, line, the effluent shall be deodorized and rendered innocuous and then disposed of in a suitable manner to the satisfaction of the Health Officer.

54. **Water taps in latrines**—(1) Where piped water supply is available a sufficient number of water taps, conveniently assessable shall be provided in or near such latrine accommodation.

    (2) If piped water supply is not available sufficient quantity of water shall be kept stored in suitable receptacles near the latrines.

COMMENTS

See Section 19 (13) of the factories Act.

55. **Number and location of spittoons**—The number and location of spittoons to be provided shall be to the satisfaction of the Inspector.

56. **Type of spittoons**—The spittoons shall be of any of the following types:

(a) A galvanised iron container with a conical funnel-shaped cover. A layer of suitable disinfectant liquid shall always be maintained in the container;

(b) A container filled with dry, clean sand, and covered with layer of bleaching powder;

(c) Any other type approved by the Chief Inspector.

57. **Cleaning of spittoons**—The spittoons mentioned in Clause (a) of Rule 56 shall be emptied, cleaned and disinfected at least once every day and the spittoons mentioned in Clause (b) of Rule 56 shall be cleaned by scrapping out the top layer of sand as often as necessary or at least once every day.

COMMENTS

Rules 55 to 57 have been framed under Section 20 (2) of the factories Act.

CHAPTER IV
SAFETY

58. Further safety precautions—Without prejudice to the provisions of sub-section (1) of Section 21 in regard to the fencing of machines, the further precautions specified in the Schedules annexed hereto shall apply to the machines noted in each Schedule.

COMMENTS

This rule has been prescribed under Section 21 of the Factories Act.

SCHEDULE I

Cotton textiles

1. *Cotton Openers, Scutchers, Combined Openers and Scutchers, Scutchers-Lap Machines, Hard Waste Breakers, etc*—(1) All Cotton Openers, Scutchers, Combined Openers and Scutchers, Scutchers-Lap Machines, Hard Waste Breakers are similar machines shall be driven by separate motors or from counter-shafts provided with fast and loose pulleys and efficient belt shifting devices.

   (2) In all Openers, Combined Openers and Scutchers, Scutchers-Lap Machines, Hard Waste Breakers and similar machines, the beater covers and doors, which give access to any dangerous part of the machine shall be fitted with effective interlocking arrangements which shall prevent—

   (a) The covers and doors being opened while the machine is in motion; and
   (b) The machine being re-started until the covers and doors are closed;

   Provided that in respect of doors or openings other than dirt doors or desk doors, such openings shall be so fenced as to prevent access to any dangerous parts of the machine if effective interlocking arrangement is not provided.

   (3) In all Openers, Combined Openers and Scutchers, Scutchers-Lap Machines, Hard Waste Breakers and similar machines, the openings giving access to the dust chamber shall be provided with permanently fixed fencing, which shall, while admitting light, yet prevent contact between any problem of a worker's body and the beater grid bars.

2. *Combined Openers and Scutcher, Scutcher-lap, Silver, Machines, Derby Doublers and Ribbon Machines*—(1) The lap forming rollers shall be fitted with a guard or cover which shall prevent access to the intake of the lap roller and fluted roller as long as the weighed rack is down.

   (2) The guard or cover shall be so locked that it cannot be raised until the machine is stopped and the machine cannot be started until the guard or cover is closed.

3. *Carding Machines*—All cylinder doors shall be secured by an automatic locking device which shall prevent the door being opened until the cylinder has ceased to revolve and shall render it impossible to re-start the machine until the door has been closed:

Provided that the latter requirement in respect of automatic locking device shall not apply while stripping or grinding operations are carried out:

Provided further that stripping or grinding operations shall be carried out only by specially trained adult workers wearing light fitting clothing whose names have been recorded in the register prescribed in sub-section (1) of Section 22.

4. *Speed Frames*—Headstocks shall be fitted with automatic locking arrangement which shall prevent the doors giving access to jack box wheels being opened whole the machinery is in motion and shall render it impossible to re-start the machine until the doors have been closed.

5. *Self-acting Mules*—The drive shall be from counter-shaft which shall be provided with fast and loose pulleys and efficient belt shifting devices.

6. *Calendaring Machines, etc*—In respect of calendaring machines, mangles and similar machines, all such machines shall be provided with an efficient "nip" guard along the whole length on the intake side of each pair of bowls and similar parts, which shall be so fitted and maintained whilst the rollers or bowls are in motion, as to prevent access to the point of contact of the roller or bowls.

SCHEDULE II

Cotton Ginning

Line Shaft—The Line Shaft or second motion in cotton ginning factories, when below floor level, shall be completely enclosed by a continuous wall or unclimable fencing with only so many openings as are necessary for access to the shaft for removing cotton seed, cleaning and oiling; and such openings shall be provided with gates or doors which shall be kept closed and locked

SCHEDULE III

Wood-working Machinery

1. *Definitions*—For the purposes of this Schedule—
   (a) "*Wood-working machine*" means a circular saw, band saw, planning machine, chain mortising machine or vertical spindle moulding machine operating on wood or cork;
   (b) "*Circular saw*" means a circular saw working in a bench (including a rack bench) but does not include a pendulum or similar saw which is moved towards the wood for the purpose of cutting operation;
   (c) "*Band saw*" means a band saw, the cutting portion of which runs in a vertical direction but does not include a log saw or band re-sawing machine; and
   (d) "*Planning machine*" means a machine for overhand planning or for thicknessing or for both operations.

2. *Stopping and starting device*—An efficient stopping and starting device shall be provided on every wood-working machine. The control of this device shall be in such a position as to be readily and conveniently operated by the person in charge of the machine.

3. *Space around machine*—The space surrounding every wood-working machine in motion shall be kept free from obstruction.

4. *Floor*—The floor surrounding every wood-working machine shall be maintained in good and level condition, and not be allowed to become slippery, and as far as practicable shall be kept free from chips or other loose material.

5. *Training and supervision*—(1) No person shall be employed at a wood-working machine unless he has been sufficiently trained to work that class of machine or unless he works under the adequate supervision of a person who has a thorough knowledge of the working of the machine.

(2) A person who is being trained to work a wood-working machine shall be fully and carefully instructed as to the dangers of the machine and the precaution to be observed to secure safe working of the machine.

6. *Circular saws*—Every circular saw shall be fenced 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 nearer the saw shall form an arc of a circle having a radius not exceeding the radius of the largest saw used on the bench;

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 the teeth of the saw shall not exceed 12 millimetres; and

iii) For a saw of a diameter of less than 60 centimetres the knife shall extend upwards from the bench table to within 25 millimetres of the top of the saw, and for a saw of a diameter of 60 millimetres or over shall extend upwards from the bench table to a height of at least 23 centimetres;

(b) The top of the saw shall be covered by a strong and easily adjustable guard, with a flange at the side of the saw farthest from the fence. The guard shall be kept so adjusted that the said flange shall extend below the roots of the teeth of the saw. The guard shall extend from the top of the riving knife to a point as low as practicable at the cutting edge of the saw; and

(c) The part of the saw below the bench table shall be protected by two plates of metal or other suitable material, one on each side of the saw; such plate shall not be more than 15 centimetres apart, and shall extend from the axis of the saw outwards to a distance of not less than 5 centimetres beyond the teeth of the saw. Metal plates, if not headed, shall be of a thickness of at least 1.25 millimetres or if beaded be of a thickness of at least .67 millimetres.

7. *Push Stick*—A push stick or other suitable appliance shall be provided for use at every circular saw and at every vertical spindle moulding machine to enable the work to be done without unnecessary risk.

8. *Band Saw*—Every band saw shall be guarded as follows:
   a) Both sides of the bottom pulley shall be completely incased by the sheet or expanded metal or other suitable material;
   b) The front of the top pulley shall be covered with sheet or expanded metal or other suitable material; and
   c) All portions of the blade shall be enclosed or otherwise securely guarded except the portion of the blade between the bench table and the top guide.

9. *Planning Machines*—(1) A planning machine (other than a planning machine which is mechanically fed) shall not be used for overhand planning unless it is fitted with a cylindrical cutter block.
   (2) Every planning machine used for overhead planning shall be provided 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 both in a vertical and horizontal direction.
   (3) The feed roller of every planning machine used for thicknessing, except the combined machine for overhead planning and thicknessing shall be provided with an efficient guard.

10. *Vertical spindle moulding machines*—(1) The cutter of every vertical spindle moulding machine shall be guarded by the most efficient guard having regard to the nature of the work being performed.
    (2) The wood being moulded at a vertical spindle moulding machine shall, if practicable, be held in a jig or holder of such construction as to reduce as far as possible the risk of accident to the worker.

11. *Chain mortising machines*—The chain of every chain mortising machine shall be provided with a guard which shall enclose the cutters as far as practicable.

12. *Adjustment and maintenance of guards*—The guards and other appliances required under this Schedule shall be—
    (a) Maintained in an efficient state
    (b) Constantly kept in position while the machinery is in motion, and

(c) So adjusted as to enable the work to be done without unnecessary risk.

13. *Exemption*—Paragraph 6, 8, 9 and 10 shall not apply to any wood-working machine in respect of which it can be proved that other safeguards are provided, maintained and used which render the machine as safe as it would be, if guarded in the manner prescribed in the Schedule.

SCHEDULE IV
Rubber Mills

1. *Installation of machines*—Mills for breaking down, cracking, granting mixing, refining and warming rubber or rubber compounds shall be so installed that the top of the front roll is not less than 105 centimetres above the floor of working level;

Provided that in existing installations where the top of the front roll is below this height a strong rigid distance bar guard shall be fitted across the front of the machine in such position that the operator cannot reach the nip of the rolls.

2. *Safety devices*—(1) Rubber mills shall be equipped with—
   (a) Hoppers so constructed or guarded that it is impossible for the operators to come into contact in any manner with the nip of the rolls; or
   (b) Horizontal safety-trip rods or tight wire cables across both front and rear, which will, when pushed or pulled, operate instantly to disconnect the power and apply the brakes, or reverse the rolls.

   (2) Safety-trip rods or tight-wire cables on rubber mills shall extend across the entire length of the face of the rolls and shall be located not more than 175 centimetres above the floor of working level.

   (3) Safety-trip rods or tight-wire cables on rubber mills shall be examined and tested daily in presence of the manager or other responsible person and if any defect is disclosed by such examination and test the mill shall not be used until such defect has been remedied.

SCHEDULE V
Centrifugal Machines

1. *Definition*—"Centrifugal Machines" include centrifugal extractors, separators and driers.
2. Every centrifugal machines shall be—
   (a) Of good design and construction and of adequate strength;
   (b) Properly maintained; and
   (c) Examined thoroughly by a competent person at regular intervals.

3. *Interlocking guard for drum or basket*—(1) The cage housing, the rotating drum or basket of every centrifugal machine shall be provided with a strong lid, the design and construction of the cage as well as of the lid shall be such that not access is possible to the drum and basket when the lid is closed.
   (2) Every centrifugal machine shall be provided with an efficient interlocking device that will effectively prevent the lid referred to in sub-paragraph (1) from being opened while the drum or basket is in motion and prevent drum or basket being set in motion while the lid is in the open position.
4. *Braking arrangement*—Every centrifugal machine shall be provided with effective braking arrangement capable of bringing the drum or basket to rest within as short a period of time as reasonably practicable after the power is cut off.
5. *Operating speed*—No centrifugal machine shall be operated at a speed in excess of the manufacturer's rating which shall be legibly stamped at easily visible places both on the inside of the basket and on the outside of the machine casing.
6. *Exceptions*—Sub-paragraph (2) of paragraph 3, paragraphs 4 and 5 shall not apply in case of top lung machines or similar machines used in the sugar manufacturing industry.

59. **Register of workers employed for work on or near machinery in motion**—In every factory a register shall be maintained in Form No. 9 in which the name and other particulars of every such workers as may be employed for such examination or operation a referred to in the provision to sub-section (1) of Section 21 shall be entered.

COMMENTS

This rule has been prescribed under Section 22 (1) of the Factories Act.

60. **Employment of young person on dangerous machines**—The machines specified in Sections 28, 29 and 30 and the machines mentioned below shall be deemed to be of such dangerous character that young person shall not work at them unless the provisions of sub-section (1) of Section 23 are complied with:
    (a) Power passes other than hydraulic presses;
    (b) Melting machines used in the metal trades;
    (c) Circular saws;
    (d) Platen printing machines;
    (e) Guillotine machines.

COMMENTS

This rule has been framed under Section 23 (2) of the Factories Act.

61. Hoists and lifts—(1) A register shall be maintained to record particulars of examinations of hoists and lifts and shall give particulars as shown in Form No. 10:

(2) In pursuance of the provisions of sub-section (4) of Section 28, in respect of any class or description of hoist or lift specified in the first column of the following Schedule, the requirements of Section 28 specified in the second column of the said Schedule and set opposite to that class or description of hoist or lift shall not apply.

SCHEDULE

Class or description of hoist or lift	Requirements which shall not apply :
Hoists or lifts mainly used for raising materials or charging last furnaces of lime kilns	Sub-section (1) (b) in so far as it requires a gate at the bottom landing; sub-section (1) (d); sub-section (1) (e).
Hoists not connected with mechanical power and which are not used for carrying persons	Sub-section (1) (b) in so far as it requires the hoistway or liftway enclosure to 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; sub-section (1) (c).

COMMENTS

This rule has been framed under Section 23 (2) of the Factories Act.

62. **Lifting machines, chains, ropes and lifting tackles**—(1) No lifting machine and no chain, rope or lifting tackle except a fibre rope or fibre rope sling, shall be taken into use in any factory for the first time in that factory unless it has been tested and all parts have been thoroughly examined by a competent person and certificate of such a test and examination specifying the safe working load or loads and signed by the person making the test and the examination, has been obtained and is kept available for inspection.

(2) Every jib-crane so constructed that the safe working load may be varied by the raising or lowering of the jib, shall have attached thereto either an automatic indicator or safe working loads or an automatic jib angle indicator and a table indicating the safe working loads at corresponding inclinations of the jib or corresponding radii of the load.

(3) A table showing the safe working loads for every kind and size of chains, rope or lifting tackle in use, and in the case of a multiple sling, the safe working loads at different angles of the legs shall be posted in the store in which the chains, ropes or lifting tackles are kept and in prominent positions on the premises, and no chain, rope or lifting tackle not shown in table shall be used:

Provided that this sub-rule shall not apply in respect of such lifting tackle if the safe workings load thereof, or in the case of multiple slings, the safe working load at different angles of the legs is plainly marked upon it.

(4) The register to be maintained under Clause (a) (iii) of sub-section (1) of Section 29 of the Act shall contain the following particulars and shall be kept readily available for inspection:\

(a) Name of occupier of factory;
(b) Address of the factory;
(c) Distinguishing number or mark, if any, and description sufficient to identify the lifting machine, chain, rope or the lifting tackle.
(d) Date when the lifting machine, chain, rope or lifting tackle was first taken into use in the factory:
(e) Date and number of the certificate relating to any test and examination made under sub-rules (1) and (9) together with the name and address of the person who issued the certificate;
(f) Date of each periodical thorough examination made under Clause (a) (iii) of sub-section (1) of Section 29 of the Act and sub-rule (8) and by whom it was carried out;
(g) Date of annealing or other heat treatment of the chain and other lifting tackle made under sub-rule (7) and by whom it was carried out;
(h) Particular of any defects affecting the safe working load found at any such thorough examination or after annealing and of the steps taken to remedy such defects.

(5) All rails on which a travelling crane moves and every track on which the carriage of a transporter or runway moves shall be of proper size and adequate strength and have an even running surface and every such rail or track shall be properly laid adequately supported and properly maintained.

(6) To provide access to rail tracks of overhead travelling cranes suitable passage-ways of a least 50 centimetres width the boards and double hand rails 90 centimetres high shall be provide alongside, and clear of, the rail tracks of overhead travelling cranes, such that no moving part of the crane can strike persons on the ways, and the passage-ways shall be at, lower than the crane track itself. Safe access ladders shall be provided at suitable intervals to afford access to these passage-ways, and from passage-ways to the rail tracks:

Provided that the Chief Inspector may, for reasons to be specified in writing, exempt any factory in respect of any overhead travelling crane from the operation f any provision of this sub-rule subject to such conditions as he may specify.

(7) All chains and lifting tackle, except a rope sling shall, unless they have been subjected to such other heat treatment as may be approved by the Chief Inspector of Factories, be effectively annealed under the supervision of a competent person at the following intervals:

(a) All chains, slings, rings, hooks, shackles and swivels used in connection with molten metal or molten slag or when they are made of 12.5 millimetres bar or smaller, once at least in every six months;
(b) All other chains, rings, hooks, shackles and swivels in general use once at least in every twelve months:

Provided that chains and lifting tackle not in frequent use shall, subject to the Chief Inspector's approval, be annealed only when necessary. Particulars of such annealing shall be entered in a register prescribed under sub-rule (4).

(8) Nothing in the foregoing sub-rule (7) shall apply to the following classes of chains and lifting tackles:

(a) Chains made of malleable cast iron;
(b) Plate link chains;
(c) Chains, rings, hooks, shackles and swivels made of steel or of any non-ferrous metal;
(d) Pitched chains, working on sprockets or pocketed wheels;
(e) Hooks an swivels having screw threaded parts or ball bearing or other case hardened parts;
(f) Rings, hooks, shackles and swivels permanently attached to pitched chains, pulleys blocks or weighing machines;
(g) Sockets, shackles secured to wire ropes by white-metal capping;
(h) Bordeaux connections;

Provided that such chains and lifting tackles shall be thoroughly examined by a competent person once at least in every twelve months and particulars entered in the register kept in accordance with sub-rule (4).

(9) All lifting machines, ropes, chains and lifting tackles, except at fibre rope slings, which have been lengthened, altered or repaired by welding or otherwise shall, before being again taken into use, be adequately re-tested and re-examined by a competent person and a certificate of such test and examination be obtained, and particulars entered in the register kept in accordance with sub-rule (4).

(10) No person under 18 years of age and no person who is not sufficiently competent and reliable shall be employed as driver of a lifting machine whether driven by mechanical power or otherwise, or to give signals to a driver.

(11) Where the Chief Inspector of Factories is satisfied that in a factory due to shut down or for any other reasons it is not practicable to maintain a minimum distance of 6 meters between the person employed or working on or near the wheel track of a travelling crane and the crane, he may, on the request of the manager, reduce the distance to such extent as he may consider necessary and also prescribe further precaution indicating appointment of suitable number of supervisors to ensure the safety of the persons while they employed or working on or near the track.

COMMENTS

This rule has been framed as provided in Section 29 of the Factories Act.

63. **Pressure vessels or plant**—(1) Interpretation—In this rule—

(a) "*Design pressure*" means the maximum pressure that a pressure vessel or plant is designed to withstand safety when operating normally;

(b) "*maximum permissible working pressure*" means the maximum pressure at which a pressure vessel or plant is permitted to be operated or used under this rule and is determined by the technical requirements of the process;

(c) "*Plant*" means a system of piping that is connected to a pressure vessel and is used to contain a gas vapour of liquid under pressure greater than the atmospheric pressure and includes the pressure vessels;

(d) "*Pressure vessel*" means a vessel that may be used for containing, storing, distributing, transferring, distilling, processing or otherwise handling any gas vapour or liquid under pressure greater than the atmospheric pressure and includes any pipeline fitting or other equipment attached thereto or used in connection therewith; and

(e) "*Competent person*" means a person who is, in the opinion of the Chief Inspector, capable by virtue of his qualification, training and experience of conducting a thorough examination and pressure tests required on a pressure vessel or plant, and of making a full report on its conditions.

(2) *Exceptions*—Nothing in this rule shall apply to—

(a) Vessels having internal diameter not exceeding 150 millimetres and a capacity not exceeding 142 litres;

(b) Vessels made of ferrous materials having an internal operating pressure not exceeding 1 Kilogram per square centimetre;

(c) Steam boiler, steam and feed pipes and their fitting coming under the purview of Indian Boilers Act, 1923;

(d) Metal bottles or cylinders used for storage or transport of compresses gases or liquefied or dissolved gases under pressure covered by the Gas Cylinder Rules, 1949 framed under the Indian Explosives Act, 1884;

(e) Vessels in which internal pressure is due solely to the static head of liquid;

(f) Vessels with a nominal water capacity not exceeding 500 litres connected in a water pumping system containing air that is compressed to serve as a cushion;

(g) Vessels for nuclear energy application;

(h) Refrigeration plant having a capacity of 3 tons or less of refrigeration in 24 hours; and

(i) Working cylinders of steam engines or prime movers, feed pumps and steam traps, turbine casting, compressor cylinders, steam separators or dryers, steam strainer, steam de-super heaters, oil separators, air receivers for fire sprinkler installation; air receivers of monotype machines; provided the maximum working pressure of the air receiver does to exceed 1.33 Kilograms per square centimetres and the capacity 85 litre, air receivers of electrical circuit breakers; air receivers of electrical relays; air vessels on pumps, pipe coils, accessories of instruments and appliances such as cylinders and piston assemblies used for operating relays and interlocking type of guards, vessels with liquids subjected to static head only; and hydraulically operating cylinders other than any cylinder communicating with an air loaded accumulator.

(3) *Design and construction*—Every pressure vessel or plant used in a factory—

(a) Shall be properly designed on sound engineering practice;

(b) Shall be of god construction, sound materials, adequate strength and free from any patent defects; and

(c) Shall be properly maintained in a safe condition:

Provided that the pressure vessel or plant in respect of the design and construction of which there is an Indian standard or standard of the country of manufacture or any other law or regulation in force, shall be designed and constructed in accordance with the said standard, law or regulation, as the case may be, and a certificate thereof shall be obtained from the manufacturer or from the competent person which shall be kept and produced on demand by an Inspector.

(4) *Safety devices*—Every pressure vessel shall be fitted with—

(a) A suitable safety valve or other effective pressure relieving device of adequate capacity to ensure that the maximum permissible working pressure of the pressure vessel shall not be exceeded. It shall be set to operate at a pressure not exceeding the maximum permissible working pressure and when more than one protective device is provided, only one of the devices need be set to operate at the maximum permissible working pressure and the additional device shall be set to discharge at a pressure not more than 5 per cent in excess of the maximum permissible working pressure;

(b) A suitable pressure gauge with a dial range not less than 1.5 times the maximum permissible working pressure, easily visible and designed to show at all times the correct internal pressure and marked with a prominent red mark at the maximum permissible working pressure of the pressure vessel;

(c) A suitable nipple and globe valve connected for the exclusive purpose of attaching at test pressure gauge for checking the accuracy of the pressure gauge referred to in Clause (b) of this sub-rule;

(d) A suitable stop valves or valve by which the pressure vessel may be isolated from the other pressure vessels or plant or source of supply of pressure. Such a stop valve or valves shall be located as close to the pressure vessels as possible and shall be easily accessible; and

(e) A suitable drain cock or valve at the lowest part of the pressure vessel for the discharge of the liquid or other substances that may collect in the pressure vessel:

Provided that it shall be sufficient for the purpose of this sub-rule if the safety valve or pressure relieving device, the pressure gauge and the stop valve are mounted on a pipeline immediately adjacent to the pressure vessel and where there is a range of two or more similar pressure vessels served by the same pressure lead, only one set of such mountings need be fitted on the pressure lead immediately adjacent to the range of pressure vessels, provided they cannot be isolated.

(5) *Pressure reducing device*—(a) Every pressure vessel which is designed for a working pressure less than the pressure at the source of supply, or less than the pressure which can be obtained in the pipe connecting the pressure vessel with any other source of supply, shall be fitted with a suitable pressure reducing valve or other suitable automatic device to prevent the maximum permissible working pressure of the pressure vessel being exceeded.

(b) To further protect the pressure vessel in the event of failure of the reducing valve or device at least one safety valve having a capacity sufficient to release all the steam, vapour or gas without undue pressure rise as determined by the pressure at the source of supply and the size of the pipe connecting the source of supply, shall be fitted on the low pressure size of the reducing valve.

(6) *Pressure vessel or plant being taken into use*—(a) No new pressure vessel or plant shall be taken into use in a factory after coming into force of this rule unless it has been hydrostatically tested by a competent person at a pressure at least 1.3 times the design pressure and no pressure vessel or plant which has been previously used or has remained isolated or idle for a period exceeding 2 months or which has undergone alterations or repairs shall be taken into use in a factory unless it has been thoroughly examined by a competent person externally and internally, if practicable and has been hydrostatically tested by the competent person at a pressure which shall be 1.5 times the maximum permissible working pressure;

Provided, however, that the pressure vessel or plant which is so designed and constructed that it cannot be safely filled with water cannot be tolerated, shall be pneumatically tested at a pressure not less than the design pressure or the maximum permissible working pressure as the case may be:

Provided further that the pressure vessel or plant which is lined with glass shall be tested hydrostatically or pneumatically as required at a pressure not less than the design pressure or maximum permissible working pressure, as the case may be.

Design pressure shall be not less than the maximum permissible working pressure and shall take into account the possible fluctuation of pressure during actual operation.

(b) No pressure vessel or plant shall be used in a factory unless there has been obtained from the maker of the pressure vessel plant or from the competent person a certificate specifying the design pressure or maximum permissible working pressure thereof and stating the nature of tests to which the pressure vessel or plant and its firings (if any) have been subjected, and every pressure vessel or plant so used on a factory shall be marked so as to enable it to be identified as to be the pressure vessel or plant to which the certificate relates and the certificate shall be kept available for perusal by the Inspector.

(c) No pressure vessel or plant shall be permitted to be operated or used at a pressure higher than its design pressure or the minimum permissible working pressure as shown in the certificate.

(7) *In-service test and examination*—(a) Every pressure vessel or plant in service shall be thoroughly examined by a competent person—

i) Externally, once in every period of six months;

ii) Internally, once in every period of twelve months;

Provided that if by reason of the construction of pressure vessel or plant a thorough internal examination is not possible this examination may be replaced by hydrostatic test which shall be carried out once in every period of two years:

Provided further that for a pressure vessel or plant in continuous process which cannot be frequently opened, the period of internal examination may be extended to four years; and

iii) Hydrostatically tested once in every period of four years:

Provided that in respect of a pressure vessel or plant with thin walls, such as sizing cylinder made of copper or any other non-ferrous metal, periodic hydrostatic test may be dispensed with subject to the condition that the requirements laid down in sub-rule (8) are fulfilled:

Provided further that when it is impracticable to carry out through external examination of any pressure vessel or plant every six months as required in sub-clause (i) of this clause, or if owing to its construction and use a pressure vessel or plant cannot be hydrostatically tested as required in sub-clauses (ii) and (iii) of this clause, a thorough external examination of the pressure vessel or plant shall be carried out at least once in every period of two years and at least once in every period of four years a thorough systematic non-destructive test like ultrasonic test for metal thickness or other defects of all parts the failure of which ultrasonic test for metal thickness or other defects of all parts the failure of which might lead to eventual rupture of the pressure vessel or plant shall be carried out.

(b) The pressure for the hydrostatic test to be carried out for the purpose of this sub-rule shall be 1.25 times the design pressure or 1.5 times the maximum permissible working pressure, whichever is less.

(8) *Thin walled pressure vessel or plant*—(a) In respect of any pressure vessel or plant of thin walls such as sizing cylinder made of copper or any other non-ferrous metal, the maximum permissible working pressure shall be reduced at the rate of 5 per cent of the original maximum permissible working pressure for every year of its use after the first five years and no such cylinder shall be allowed to continue to be used for more than twenty years after it was first taken into use.

(b) If any information as to the date of construction, thickness of walls or maximum permissible working pressure is not available, the age of such pressure vessel or plant shall be determined by the competent person in consultation with the Chief Inspector from the other particular available with the manager.

(c) Every new and second hand pressure vessel or plant of thin walls to which repairs likely to affect its strength or safety have been carried out, shall be tested before use to at least times its maximum permissible working pressure.

(9) *Report by competent person*—(a) If during any examination any doubt arises as to the ability of the pressure vessel or plant to work safely until the next prescribed examination the competent person shall enter in the prescribed register his observations, findings and conclusions with other relevant remarks with reasons and may authorise the pressure vessel or plant to be used and kept in operation subject to a lowering of maximum permissible working pressure or to more frequent or special examination or test, or subject to both of these conditions.

(b) A report of every examination or test carried our shall be completed in Form No. 11 and shall be signed by the person making the examination or test and shall be kept available for perusal by the Inspector at all hours when the factory or any part thereof is working.

(c) Where the report of any examination under this rule specified any conditions for securing the safe working of any pressure vessel or plant the pressure vessel or plant shall not be used unless the specified condition is fulfilled.

(d) The competent person making report of any examination under this rule shall, within seven days of the completion of the examination, send to the Inspector a copy of the report in every case where the maximum permissible working pressure is reduced or the examination shows that the pressure vessel or plant or any part thereof cannot continue to be used with safety unless certain repairs are carried out or unless any other safety measure is taken.

(10) *Application of other laws*—(a) The requirements of this rule shall be in addition to and without any prejudice to and not in derogation of the requirements of any other law in force

(b) Certificates or reports of any examination or test of any pressure vessel or plant to which sub-rules (7) to (9) do not apply, conducted or required to be conducted under any law in force and other relevant record relating to such pressure vessel or plant shall be properly maintained as required under the said law and shall be produced on demand by the Inspector.

64. **Water-sealed gasholder**—(1) The expression "Gasholder" means a water-sealed gasholder which has a storage capacity of not less than 141.5 cubic meters.

(2) Every gasholder shall be of adequate material and strength, sound construction and properly maintained.

(3) Where there is more than one gasholder in a factory, every gasholder shall be marked in a conspicuous position with a distinguishing number or letter.

(4) Every gasholder shall be thoroughly examined externally by a competent person at least once in a period of 12 months.

(5) In the case of gasholder of which any lift has been in use for more than 10 years, the internal state of the sheeting shall, within one year of the coming into operation of these rules and thereafter at least once in every period of four years, be examined by a competent person by means of electronic or other accurate devices:

Provided that if the Chief Inspector is satisfied that such electronic or other accurate devices are not available, he may permit the cutting of samples from the crown and the sides of the holder:

Provided further that if the above examination raises doubt, an internal visual examination shall be made.

(6) All possible steps shall be taken to prevent or minimise ingress of impurities in the gasholder.

(7) No gasholder shall be repaired or demolished except under the direct supervision of a person who, by his training, experience knowledge of the necessary precautions against risks of explosion and of persons being overcome by gas is competent to supervise such work.

(8) (a) All sample discs cut under sub-rule (5) above shall be kept readily available for inspection.

(b) A permanent register in Form No. 12 duly signed by the occupier or manager shall be maintained.

(c) The results of examinations by the competent person carried out as required under sub-rules (4) and (5) shall be recorded in Form No. 13.

(d) A copy of the report in Form No, 13 shall be kept in the register in Form No. 12 and both the register and the report shall be readily available for inspection.

(9) The Inspector of Factories shall inspect the gasholder at least once in a period of 12 months.

COMMENTS

Rules 63 and 64 have been prescribed under Section 31 (2) of the Factories Act.

65. **Excessive weights**—(1) No woman or young person shall, unaided by another person, lift, carry or move by hand or on head, any material, article, tool or appliance exceeding the maximum limit in weight set out in the following Schedule:

SCHEDULE

Persons		Maximum weight of material, article, tool or appliance
(a) Adult female	.....	30 Kilograms
(b) Adolecent male	.....	30 Kilograms
(c) Adolecent female	.....	20 Kilograms
(d) Male child	.....	16 Kilograms
(e) Female child	.....	14 Kilograms

(2) No woman or young person shall engage, in conjunction with others in lifting, carrying or moving by hand or on head, any material, article, tool or appliance if the weight thereof exceeds the lowest weight fixed by the Schedule to sub-rule (1) for any of the persons engaged, multiplied by the number of the persons engaged.

COMMENTS

This rule has been prescribed under Section 34 (2) of the Factories Act.

66. **Protection of eyes**—Effective screens or suitable goggles shall be provided for the protection of persons employed in or in the immediately vicinity of the following processes.

(a) The processes specified in Schedule I annexed hereto, being processes which involve risk of injury to the eyes from particles or fragments thrown off in the course of the process.

(b) The processes specified in Schedule II annexed hereto, being processes which involve risk of injury to the eyes by reason of exposure to excessive light or infra-red or ultra radiations.

SCHEDULE

1. Breaking, cutting, dressing or carving of bricks, stone concrete slag or similar materials by means of a hammer, chisel, pick or similar hand tool, or by means of portable tool driven mechanical power, and the dry grinding of surfaces of any such material by means of wheel or disc driven by mechanical power where in any of the foregoing cases, particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
2. Dry grinding of surfaces of metal by applying them by hand to a wheel, disc or hand driven by mechanical power, and of surfaces of metal by means of a portable tool driven by mechanical power.
3. Dividing into separate parts of metal, bricks, stone, concrete or similar materials by means of a high speed saw driven by mechanical power or by means of an abrasive cutting-off wheel or disc driven by mechanical power.
4. Turning of metals or articles of metal, where particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
5. Drilling by means of portable tools, where particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
6. Welding and cutting of metals by means of an electric, oxyacytylene or similar process.
7. Hot fettling of steel casting by means of a flux-injected nburner or air torch, and de-seaming of metal.
8. Fettling of metal castings involving the removal of metal including runners, gates and rises; and removal of any other material during the course of such fettling.

9. Chipping of metal, and chipping, knocking out, cutting out or cutting off of cold rivets, bolts, nuts, lugs, pins, collar or similar articles from any structure or plant, or from part of any structure or plant, by means of a hammer, chisel punch or similar hand tool, or by means of a portable tool driven by mechanical.
10. Chipping or scurfing of paint, scale slag, rust or other corrosion from the surface of metal and other hard materials by means of a hand tool or by a portable tool driven by mechanical power.
11. Breaking of scrap metal by means of a hammer or by means of a tool driven by mechanical power.
12. Routing of metal, where particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
13. Work with drop hammers and power hammers used in either case for the manufacture of forgings, and work by any person not working with such hammers, whose work is carried on in such circumstances and in such a position that particles or fragments are liable to be thrown off towards his face during work with drop hammers or power hammers.
14. Work at a furnace where there is risk to the eye from molten metal.
15. Pouring or skimming of molten metal.
16. Work involving risk to the eyes from not sand being thrown off.
17. Turning or dressing of an abrasive wheel.
18. Handling in open vessels or manipulation of strong acids or dangerous corrosive liquids or materials, and operation, maintenance, or dismantling of plant or any part of plant, being plant or part of plant which contains or has contained such acids, liquids or materials, unless the plant or part of plant has been so prepared (by isolation, reduction of pressure or otherwise) treated, or designed and constructed as to prevent risk of injury.
19. Any other process wherein there is a risk of injury to eyes from particles or fragments thrown off during the course of the process.

SCHEDULE II

1. Welding or cutting of metals by means of an electrical, oxyacetylene or similar process.
2. All work on furnaces where there is risk of exposure to excessive light or infra-red radiations.
3. Processes such as rolling, casting or foregoing of metals, where there is risk of exposure to excessive light or infra-red radiations.
4. Any other process wherein there is a risk of injury to eyes from exposure to excessive light or infra-red or ultra-violet radiations.

COMMENTS

This rule has been prescribed under Section 35 of the Factories Act.

67. **Minimum dimensions of manholes**—Every chamber, tank, vat, pipe, flue or other confined space, which persons may have to enter and which may contain dangerous fumes to such an extent there is other effective means of egress, be provided with a manhole which may be rectangular, oval or circular in shape, and which shall—

(a) In the case of a rectangular or oval shape, be not less than 40 centimetres long and 30 centimetres wide; and

(b) In the case of a circular shape, be not less than 40 centimetres in diameter.

COMMENTS

This rule has been framed as provided under sub-section (6) of Section 36 of the Factories Act.

68. **Exemptions**—The requirements of sub-section (4) of Section 37 shall not apply to the following processes carries on in any factory.

(a) The operation of repairing a water-sealed gas-holder by the electric welding process subject to the following conditions:

i) The gas-holder shall contain only the following gases, separately or mixed at a pressure, greater than atmospheric pressure, namely, town gas, coke-oven gas, producer gas, blast furnace gas or gases other than air, used in their manufacture.

Provided that this exemption shall not apply to any gas-holder containing acetylene or mixture of gases to which acetylene has been added intentionally; and

ii) Welding shall only be done by the electric welding process and shall be carried out by the experienced operatives under the constant supervision of a competent person;

(b) The operation of cutting or welding steel or wrought iron gas mains and services by the application of heat, subject to the following conditions:

i. The main or service shall be situated in the open air, and it shall contain only the following gases, separately or mixed at a pressure greater than atmospheric pressure, namely, town gas, coke-oven gas, producer gas, blast furnace gas, or gases other than air, used in their manufacture.

ii. The main or service shall not contain acetylene or any gas or mixture of gases to which acetylene has been added intentionally;

iii. The operation shall be carried out by an experienced person or persons and at least 2 persons (including those carrying out the operations) experienced in work on gas mains and over 18 years of age shall be present during the operations;

iv. The site of operation shall be free from any inflammable or explosive gas or vapour;

v. Where acetylene gas is used as a source of heat in connection with an operation, it shall be compressed and contained in a porous substance in a cylinder; and

vi. Prior to the application of any flame to the gas main or service, this shall be pierced or drilled and the escaping gas ignited.

(c) The operation of repairing an oil tank, on any ship by the electric welding process, shall be subject to the following conditions:

i. The only oil contained in the tank shall have a flash point of not less than 5.5 degrees centigrade (closed test) and a certificate to this effect shall be obtained from a competent analyst;

ii. The analyst's certificate shall be kept avible for inspection by an Inspector, or by any person employed or working on the ship;

iii. The welding operation shall be carried out only on the exterior surface of the tank at a place—(a) which is free from oil or oil leakage in inflammable quantities; and (b) which is not less than 30 centimetres below the nearest part of the surface of the oil within the tank; and

iv. Welding shall be done only by the electric welding and shall be carried out by experienced operatives under the constant supervision of a competent person.

COMMENTS

This rule has been framed as provided under sub-section (5) of Section 37 of the Factories Act.

69. **Means of escape in case of fire**—(1) Every factory shall be provided with adequate means of escape in case of fire for the persons employed therein, and without prejudice to the generality of the foregoing—

(a) Each room of factory building shall, in relation to its size and the number of persons employed in it, be provided with an adequate number of exits for use in case of fire though not necessarily confined to such use, so positioned that each person will have a reasonably free and unobstructed passage from his work place to an exits;

(b) No exit intended for use in case of fire shall be less than 90 centimetres in width nor less than two metres in height;

(c) In the case of a factory building or part of a factory building of more than one storey and in which not less than twenty persons work at any one time, there shall be provided at least one substantial stairway permanently constructed either inside or outside the building and which affords direct and unimpeded access to ground level;

(d) In the case of a factory building or part of a factory building in which twenty or more persons work at any one time above the level of the ground floor, and wherein explosive or highly inflammable materials are used or stored, or which is situated below ground level, the means of escape shall include at least two separate and substantial stairways permanently constructed either inside or outside the building and which afford direct and unimpeded access to ground level; and

(e) I very stairway in a factory which affords a means of escape in case of fire shall be provided with a substantial hand-rail which if the stairway has an open side shall be on that side, and if the stairway has two sides, such handrail shall be provided on both sides.

(2) In the case of a building constructed or converted for use as a factory after the date of the passing of the Act, the following additional requirements shall apply:

(a) At least one of the stairways provided and shall be of fire-resisting materials;

(b) Every hoist-way or lift-way inside a factory building shall be completely enclosed with fire-resistance materials and all means of access to the hoist or lift shall be fitted with doors of fire-resisting materials;

Provided that any such hoist-way or lift-way shall be enclosed only at the top by some materials easily broken by fire or be provided with a vent at the top;

(c) No fire escape stair shall be constructed at an angle greater than 45^0 from the horizontal;

(d) No part of a factory building shall be farther (along the line of travel) than 45 metres from any fire escape stair; and

(e) No stairway shall be less than 115 centimetres in width.

COMMENTS

This rule has been prescribed under Section 38 (1) of the Factories Act.

70. **Fire fighting apparatus and water supply**—(1) (a) In every factory there shall be provided and maintained adequate first-aid fire fighting equipment for fighting fire in the early stages. The types and scale of equipment to be provided and the manner of testing, installation, inspection and maintenance of these equipments shall conform to the Indian Standard I.S.: 2190-1971.

(b) For the purpose of this rule, wherever the Indian Standard referred to in Clause (a) mentions that the requirements concerning the scale of first-aid fighting appliance and other relevant matters are to be determined by the Inspecting Authority having jurisdiction, such inspecting authority shall be officers appointed under Section 8 of the Act:

Provided that if the Chief Inspector is of the opinion that other suitable fire fighting arrangements which have been provided in the factory building or room satisfies partly or fully the purpose of this sub-rule, he may by an order in writing, grant exemption (which he may at his discretion revoke) specifying the extent to which the requirements in this sub-rule are relaxed in respect of the building or room.

(2) In every factory, adequate provision of water supply for fire fighting shall be made and where the amount of water required in litres per minute, as calculated from formula A+B+C+D divided by 1000, is 5.0 litre or more, power driven trailer pumps of adequate capacity to meet the requirement of water as calculated above shall be provided and maintained.

In the above formula—

A = the total area in square meters of all floors including galleries in all buildings of the factory;

B = the total area in square meters of all floors and galleries including open spaces in which combustible materials are handled or stored;

C = the total area in square meters of all floors over 15 meters above ground level; and

D = the total area in square meters of all floors of all buildings other than those of fire resisting construction:

Provided that in areas where the fire risk involved does not require use of water such areas under B, C or D may, for the purpose of calculation, be halved:

Provided further that where the areas under B, C or D are protected by permanent automatic fire-fighting installations approved by any fire association or fire insurance company, such areas may, for the purpose of calculation, be halved:

Provided also that where the factory is situated at not more than 3 kilometres from an established city or town fire service, the pumping capacity based on the amount of water arrived at by the formula above may be reduced by 25 per cent but no account shall be taken of this reduction in calculating water supply required under sub-rule (7).

(3) Each trailer pump shall be provided with equipment as per Schedule A. Such equipment shall conform to Indian Standard specification whether they exist.

(4) Trailer pumps shall be housed in separate shed/sheds which shall be sited close to a principal source of water supply in the vicinity of the main risk of the factory.

(5) In factories where the area is such as cannot be reached by manhauling of trailer pumps within reasonable time, vehicles with towing attachment shall be provided at the scale of one every four trailer pumps with a minimum of one such vehicle kept available a tall time.

(6) Water supply shall be provided to gibe flow of water as required under sub-rule (2) for at least 100 minutes. At least 50 per cent of this water supply or 4,50,000 litres whichever is less, shall be in the form of static tanks of adequate capacities (not less than 450,000 litres each) distributed round the factory with due regard to potential fire risks in the factory. Where piped supply is provided, the size of the main shall not be less than 10 centimetres' diameter and it shall be capable of supplying a minimum of 4,500 litres per minute at a pressure of not less than 0.7 Kilogram per square centimetre.

(7) Each factory shall detail a trained officer who shall be responsible for the proper maintenance and upkeep of all fire-fighting equipments.

(8) If the Chief Inspector is satisfied in respect of any factory or any part of the factory that owing to the exceptional circumstances such as in adequacy of water supply or in frequency of the manufacturing process or for any other reason, to be recorded in writing, all or any of the requirements of the rules are impracticable or not necessary for the protection of workers, he may by order in writing (which he may at his discretion revoke), exempt such factory or part of that factory from all or any of the provisions of the rules subject to conditions as he may by such order prescribe.

SCAHEDULE A

For light Trailer pumps (680litres/minute)

1 armoured suction hose, of 9 metres length, with wrenches.
1 Metal suction strainer.
1 Basket strainer.
1 Two-way suction collecting-head.
1 Suction adapter.
10 Unlined or rubber lined 70 m.m. delivery of 25 meters length hose complete with quick-release couplings.
1 Diving Breaching piece.
2 Branch pipes with 15 m.m. nozzles.
1 Diffuser Nozzle.
1 Standpipe with blank cap.

1 Hydrant-key.
4 Collapsible canvas buckets.
1 Fire hook (peventer) with cutting edge.
1 25 m.m. manila rope of 30 meters length.
1 Extension ladder of 9 meters length (where necessary).
1 Heavy axe.
1 Spade
1 Pick axe.
1 Crowbar.
1 Saw
1 Hurricane lamp.
1 Electric Torch.
1 Pair Rubber Gloves.

For large trailer pump (1800 litres/minutes)

1 Armoured suction hose, of 9 metres length, with wrenches.
1 Metal strainer.
1 Basket strainer.
1 Three-way suction collecting-head.
1 Suction adapter.
14 Unlined or rubber lined 70 m.m. delivery of 25 meters length complete with quick-release couplings.
1 Diving breaching piece.
1 Collecting breaching-piece.
4 Breach pipes with one 25 m.m. two 20 m.m. and one diffuser nozzle.
2 Standpipes with blank caps.
2 Hydrant-key.
4 Collapsible canvas buckets.
1 Ceiling hook (peventer) with cutting edge.
1 50 m.m. manila rope of 30 meters length.
1 Extension ladder of 9 meters length (where necessary).
1 Pair Rubber Gloves.
1 Heavy axe.
1 Spade
1 Pick axe.
1 Crowbar.
1 Saw
1 Hurricane lamp.
1 Electric Torch.

Note—If it appears to the Chief Inspector of Factories that in any factory the provision of breathing apparatus is necessary he may, by order in writing, require the occupier to provide suitable breathing apparatus in addition to the equipment for light trailer pump or large trailer pump as the case may be.

COMMENTS

This rule has been framed under sub-section (7) of Section 38 and Section 112 of the Factories Act.

71. **Safety Officers**—(1) *Qualifications*—(a) A person shall not be eligible for appointment as a Safety Officer unless he—

i. Possesses—

(aa) a recognised degree in any branch of engineering or technology and has had practical experience of working in factory in a supervisory capacity for a period of not less than 2 years; or

(bb) a recognised degree in physics or chemistry and has had practical experience of working in factory in a supervisory capacity for a period of not less than 5 years; or

(cc) a recognised diploma in any branch of engineering or technology and has had practical experience of working in factory in a supervisory capacity for a period of not less than 5 years; or

ii. Possesses a degree or diploma in industrial safety recognised by the State Government in this behalf; and

iii. Has adequate knowledge of the language spoken by majority of the workers in the region in which the factory where he is to be appointed is situated.

(b) Notwithstanding the provisions contained in Clause (a) any person who--

i. Possesses a recognised degree or diploma in engineering or technology and has had experience of not less than 5 years in a department of the Central or State Government which deals with the administration of the Factories Act, 1948 or the Indian Dock Labourers Act, 1934; or

ii. Possesses a recognised degree or diploma in engineering or technology and has had experience of not less than 5 years' full time, on training education, consultancy, or research in the field of accidents' prevention in industry or in any institution;

Shall also be eligible for appointment as a Safety Officer:

Provided that the Chief Inspector may, subject to such conditions as he may specify, grant exemption from the requirements of this sub-rule, if in his opinion, a suitable person possessing the necessary qualifications and experience is not available for appointment;

Provided further that, in the case of a person who has been working as a Safety Officer for a period of not less than 3 years on the date of commencement of this rule, the Chief Inspector may, subject to such condition as he may specify, relax all or any of the above said qualifications

(2) *Conditions of service*—(a) Where the number of Safety Officers to be appointed in a factory as required by a notification in the official Gazette exceeds one, one of them shall be designated as the Chief Safety Officer and shall have a status higher than that of the others. The Chief Safety Officer shall be in overall charge of the safety functions as envisaged in sub-rule (3) and other Safety Officers working under his control.

(b) The Chief Safety Officer or the Safety Officers in the case of factories where only one Safety Officer is required to be appointed shall be given the status of a senior executive and he shall work directly under the control of the chief executive of the factory. All other Safety Officers shall be given appropriate status to enable them to discharge their functions effectively.

(c) The scale of pay and the allowances to be granted to the Safety Officers including the Chief Safety Officer, and the other conditions of their service shall be the same as those of the other officers of corresponding status in the factory.

(d) In the case of dismissal or discharge, a Safety Officer shall have a right to appeal to the State Government whose decision therein shall be final.

(3) *Duties of Safety Officers*—(a) The duties of the Safety Officer shall be to advise and assist the factory management in the fulfilment of its obligations, statutory or otherwise, concerning prevention of personal injuries and maintaining a safe working environment. These duties shall include the following, namely—

i) To advise the concerned departments in planning and organising measures necessary for the effective control of personal injuries;
ii) To advise on safety aspects in all job studies, and to carry out detailed job safety studies of selected jobs;
iii) To check and evaluate the effectiveness of the action taken or proposed to be taken to prevent personal injuries;
iv) To advise the purchasing and stores departments in ensuring high quality and availability of personal protective equipment;
v) To provide advice on matters related to carrying out plant safety inspections;
vi) To carry out plant safety inspections in order to observe the physical conditions of work and the work practices and procedures followed by workers and to render advice on measures to be adopted for removing the unsafe physical conditions and preventing unsafe actions by workers;
vii) To render advice on matters related to reporting and investigation of industrial accidents and diseases;
viii) To investigate selected accidents;
ix) To investigate the cases of industrial disease contracted and dangerous occurrences portable under Rule 117;
x) To advice on the maintenance of such records as are necessary relating to accidents, dangerous occurrence and industrial diseases;
xi) To promote setting up of Safety Committees and act as adviser and catalysts to such Committees;

xii) To organise in association with the concerned departments, campaigns, competitions, contests and other activities which will develop and maintain the interest of the workers in establishing and maintaining safe conditions of work and procedures; and

xiii) To design and conduct either independently or in collaboration with the training department, suitable training and educational programme for the prevention of personal injuries.

(4) *Facilities to be provided to Safety Officers*—An occupier of the factory shall provide each Safety Officer with such facilities, equipment and information as are necessary to enable him to discharge his duties effectively.

(5) *Prohibition of performance of other duties*—No Safety Officer shall be required or permitted to do any work which is inconsistent with or detrimental to the performance of the duties prescribed in sub-rule (3).

COMMENTS

This rule has been prescribed under Section 40-B of the Factories Act.

72. **Buildings and structures**—No building, wall, chimney, bridge, tunnel, road, gallery, stairway, ramp, floor, platform, staging, or other structure whether of a permanent or temporary character, shall be constructed, situated or maintained in any factory in such a manner as to cause risk of bodily injury.

COMMENTS

For this rule and Rules 13 to 16, see Section 41 of the Factories Act.

73. **Machinery and plant**—No machinery, plant or equipment, shall be constructed, situated, operated or maintained in any factory in such a manner as to cause risk of bodily injury.

74. **Methods of work**—No process or work shall be carried on in any factory in such a manner as to cause risk of bodily injury.

75. **Stacking and storing of materials, etc**—No materials or equipment shall be stacked or stored in such a manner as to cause risk of bodily injury.

76. **Use of polymerising machines in the printing departments of cotton textile mills**—(1) The following precautions shall be taken when fabrics are processed in polymerising or curing machine for fixing print by the emulsion technique, namely—

(a) Printed fabrics shall be thoroughly dried by passing then over drying cans or through a hot flue or other equally effective means, before the same are allowed to pass through the polymerising machine;

(b) The exhaust flap or dampers shall be provided with a hole or opening so that at least two-third of it is always open;

(c) Infra-red ray heaters of the machines shall be cut off while running the prints;

(d) The electrical heater shall be connected to a separate circuit and shall be provided with an isolation switch so as to ensure that it is completely cut off in an emergency;

(e) The electrical heater shall be so located that if there is any dropping of the solvent due to condensation, it does not directly come in contact with the heaters;

(f) The drive of the exhaust fan shall be interlocked with the main drive of the machine in such a way that if the exhaust motor stops, the machine including all heating devices shall also stop;

(g) The electrical heater shall have thermostats to regulate the temperature so that the heaters shall automatically cut off, if the temperature rises above the pre-set value;

(h) Adequate flaps shall be provided on top of the machine which can open and let off fumes outside the workroom in case of an explosion or in case any pressure is built up;

(i) Filter gauze shall be cleaned at least once a week;

(j) Exhaust duct shall be cleaned at least once a week; and

(k) Tension of the V-belt drive of the fans shall be checked every week.

(2) The machine shall be examined under the direct supervision of a responsible person designated by the occupier or manager, who, by his experience and knowledge of necessary precautions against risks of explosion, is fit to supervise such work.

(3) A register shall be maintained in which the details of the various checks carried under sub-rule (2) shall be entered and every entry made therein shall be signed by the person making the checks.

77. **Shipbuilding and ship-repairing**—(1) *Application*—This rule shall apply as respects work carried out in any of the operation defined in sub-rule (2).

(2) *Definitions*—In this rule unless there are anything repugnant in the subject or context-

(a) "*certificate of entry*" means a certificate which is given by a person who is a competent analyst and who is competent to give such certificate, and that he has in an adequate and suitable manner tested the atmosphere in the oil-tank or oil-tanks specified in the certificate and found that having regard to all the circumstances of the case including the likelihood otherwise of the atmosphere being or becoming dangerous, entry to the oil-tanks without wearing breathing apparatus may in his opinion be permitted;

(b) "*hot work*" means any work which involves—

i. Welding, burning, soldering, brazing, sand blasting or chipping by spark producing tools;

ii. Use of non-flameproof electrical equipment or equipments with internal combustion engines; and includes any other work which is likely to produce sufficient heat, capable lighting, flammable gases or vapours;

(c) "*naked light certificate*" means a certificate which is given by a person who is a competent analyst and who is competent to give such certificates, and certifies that he has in an adequate and suitable manner tested for the presence of flammable vapour the oil-tank compartment, space or other part of the vessel specified in the certificate and found it to be free there from and that having regard to all the circumstances of the case, including the likelihood or otherwise of the atmosphere becoming flammable, the use of naked lights, fires, lamps or heated rivest or any hot work to be carried out may in his opinion be permitted in the oil-tank, compartment, space or other part of the vessel specified in the certificates;

(d) "*oil*" means any liquid which has a flash point below 132 degrees centigrade and also includes lubricating oil, liquid methane, liquid butane and liquid propane.

Explanation—Flash point wherever it occurs in this rule shall be flash point as determined by Abel Closed Cup or Pensky-Marten Closed Cup procedures as described in IS 1448-1960.

(e) "*oil-tank*" means any tank or compartment in which oil is or has been carried;

(f) "*the operations*" means—

i) Construction, reconstruction, or breaking up of any ship or vessel, repairing, refitting, painting and finishing; and

ii) The scaling scurfing or cleaning of its boilers (including combustion chambers or smoke boxes); and

iii) The cleaning of its bilges or oil-fuel or any of it tanks last used for carrying oil.

For the purpose of this definition the expression "oil" means oil of any description whether or not oil within the meaning of foregoing definition of that expression;

(g) "*ship and vessel*" have the same meanings as in the Merchant Shipping Act, 1958;

(h) "*shipyard*" means any yard or dry dock (including the precincts thereof) in which ships or vessels are constructed, reconstructed, repaired, refitted or finished;

(i) "*stage*" means any temporary platform on or from which persons employed perform work in connection with operations, but does not include a boatswain's chair;

(j) "*staging*" includes any stage, and any upright thwart, thwart pin, wedge, distance dice, belt or other appliance or materials not being part of the structure of the vessel, which is used in connection with the support of any stage, and any guard-rails connected with a stage; and

(k) "*tanker*" means a vessel constructed or adopted for carrying a cargo of oil in bulk.

ACCESS AND STAGING

(3) *General access to vessels in a shipyard*—All main gangways giving general access to a vessel in a shipyard, whether from the ground or from wharf or quay, and all gross gangways leading from such a main gangway on to the vessel, shall--

(a) Be at least 60 centimetres wide;
(b) Be securely protected on each side to a height of at least 90 centimetres by strongly constructed upper and lower handrails and by a secure toe-board projecting at least 15 centimetres above the floor;
(c) Be of good construction, sound materials and adequate strength;
(d) Be stable and, whatever practicable, of permanent construction;
(e) Be kept in position as long as required; and
(f) Maintained in good repair.

(4) *Access to dry dock*—(a) Every flight of steps giving access from ground level either to an altar or to the bottom of a dry shall be provided throughout on each side with a substantial hand-rail. In the case of an open side, secure fencing to a height of at least 90 centimetres shall be provided by means of upper and lower rails, taut ropes or chains, or by other equally safe means. For the purpose of this clause a flight of steps which is divided into two by a chute for material, with no space between either side of the chute and the steps, shall be deemed to be one flight of steps.

(b) Such hand rails and fencings as aforesaid shall be kept in position save when and to the extent to which their absence is necessary (whether or not for the purposes of the operations) for the access of persons, or for the movement of materials or vessels or for traffic or working, or for repairing out handrails or fencing removed for any of these purposes shall be kept readily available and shall be replaced as soon as practicable.

(5) *Access to vessel in dry dock*—(a) If a ship is lying in a dry dock for the purpose of undergoing any of the operations, shall be provided as means of access for the use of workers at such times as they have to pass to, or from, the ship or dry dock—

i) Where reasonably practicable one or more ship's accommodation ladders; or
ii) One or more soundly constructed gangways or similar construction.

(b) The means so provided shall be not less than 55 centimetres' wide properly secured and fenced throughout on each side to a clear height of 90 centimetres by means of upper and lower rails, taut ropes or chain or by any other safe means, except that in the case of the ship accommodation ladders, such fencing shall be necessary on the one side only, provided where the other side is properly protected by the ship's side.

(c) Where at any dry dock, there is gangway giving access from an altar of the dock to a vessel which is in the dock for the purpose of undergoing any of the operations, and the edge the altar is unfenced, adequate hand-holds shall be available for any length of the altar which workers commonly use when passing between the gangway and the nearest flight of steps which give access to ground level.

(6) *Access to and from bulwarks*—Where there is a gangway leading on to a bulwark of a vessel there shall be provided—

(a) Wherever practicable, a platform at the in-board end of the gangway with safe means of access there from to the dock; or

(b) Where such a platform is not practicable, a second gangway or stairway leading from a bulwark on to the dock are, either attached from the first gangway or placed contiguous to it, in which case means of access, securely protected by fencing shall be provided from the one to the other.

(7) *Access to staging, etc*.—(a) Where outside staging is erected in a shipyard, there shall be provided sufficient ladders giving direct access to the stages having regard to the extent of the staging and to the work to be done.

(b) Where a vessel is under construction or reconstruction and workers are liable to go forward craft or athwartship across or along uncovered deck-beams, or across or along floors, sufficient plank shall be provided on those deck-beams or on those floors of the purpose of access to or from places of work, and sufficient and suitable portable ladders shall be provided so as to give access either from the ground or other bottom plating to the top of the floor.

(c) Without prejudice to any other provision in this rule requiring a greater width, no footway or passageway constructed of planks shall be less than 45 centimetres side.

(8*) Ladders*—(a) Subject to Clauses (b) and (c) of this sub-rule, every ladder which affords a means of access, communication or support to a person shall—

i) Be soundly constructed and properly maintained, and

ii) Be of adequate strength for the purpose for which it is used, and

iii) Be securely fixed either—

(aa) as near its upper resting place as possible, or

(bb) where this is impracticable at its base or where such fixing is impracticable a person shall be stationed at the base of the ladder when in use to prevent it from slipping, and

iv) Unless there is other adequate hand-hold extend to a height of at least 75 centimetres above the place of landing or the highest rung to be reached by the foot of any person working on the ladder, as the case may be, or, if this is impracticable, to the greatest practicable height.

(b) Requirements (iii) and (iv) of the preceding clause of this sub-rule shall not apply to fixed ladder of a ship or to a rope ladders. Effective measures by means of roping off or other similar means shall be taken to prevent the use of fixed ladders of a ship which do not comply with requirements (i) and (ii) of that clause.

(c) any worker who removes any ladder and sets it up in a new position shall as regards that ladder, comply with requirement (iii) of Clause (a) of this sub-rule.

(d) Rope ladders shall provide foot-hold of a depth including any space behind the ladder of not less than 12 centimetres and, so far as it reasonably practicable, suitable provision shall be made for preventing such ladders from twisting.

(9) *Lasting of ladders*—(a) A fibre rope, or a rope made with stands consisting of wire cores covered with fibre shall not be used to secure a ladder used for the purpose of the operations.

(b) A wire rope shall not be used to secure any such ladder unless its ends are ferruled, but this provision shall not apply in the case of an end which is so situated or protected that a person using the ladder is not liable to come into contact with it so as to suffer injury.

(10) *Material for staging*—(a) A sufficient supply of sound and substantial material and appliances shall be available in convenient place or places for the construction of staging.

(b) All planks and other materials and appliances intended to be used or re-used for staging shall be carefully examined before being taken into use or re-use in any staging. Every examination required by this clause shall be carried out by a person competent for the purpose.

(11) *Staging, dry dock altars and shoring sills*—(a) All staging and every part thereof shall be of good construction, of suitable and sound material and of adequate strength for the purpose for which it is used and shall be properly maintained and every upright and thwart shall be kept so fixed, secured or placed in position as to prevent, so far as is reasonably practicable, accidental displacement.

(b) All planks forming stages shall be securely fastened to prevent them from slipping unless they extend 45 centimetres or more beyond the inside edge of the thwart or support on which they rest.

(c) All staging used in connection with the operations shall be inspected before use, and thereafter at regular and frequent intervals, by a responsible person.

(d) All dry dock altars and shoring sills on or from which people perform work in connection with the operations shall be of sound construction and properly maintained.

(e) All parts of stages, all parts of footways or passageways constructed of planks, and all parts of dry dock altars or shoring sills, being on or from which persons perform work in connection with the operations, shall so far as is reasonably practicable, be kept clear of all substance likely to make foot-hold or hand-hold insecure.

(12) *Upright use for hoisting block*—(a) If any upright forming parts of staging is used as a fixing for a fully block for hoisting materials—

i) It shall be properly housed in the ground or shall otherwise be adequately secured so as to prevent it from rising; and

ii) It shall be suitably protected against damage by the action the chain or wire or other means of securing the pulley block to the upright.

(b) No upright forming part of staging shall be used as an anchorage for a load pulley block unless the upright is not likely to be displaced by such use.

(13) *Support of stages on planks*—Planks supported on the rungs of ladders shall not be used to support stages.

(14) *Suspended stages*—(a) Stages suspended by ropes or chains shall be secured as far as possible so as to prevent them from swinging.

(b) A fibre rope, or a rope made of strands consisting of wire cores covered with fibre, shall not be used for suspending a stage except that fibre ropes may be used in the case of a stage of which the suspension ropes are received through blocks.

(c) Chains, ropes, blocks and other gear used for the suspension of stages shall be of sound materials, adequate strength and suitable quality, and in good condition.

(d) Appropriate steps shall be taken to prevent ropes or chains used for supporting a stage from coming into contact with sharp edges of any part of a vessel.

(15) *Boatswains' chairs*—(a) Boatswains' chairs and chains, ropes or other gear used for their suspension shall be of sound material, adequate strength and suitable quality and the chains, ropes or other gear shall be securely attached.

(b) Suitable measures shall be taken to prevent where possible the spinning of a boatswains' chair and to prevent any occupant falling there from.

(16) Rising stage—All planks forming a rising at the bow end of a vessel shall be securely fastened to prevent them from slipping.

(17) *Width of staging*—Without prejudice to the other provisions of these sub-rules, all stages shall be of sufficient width as is reasonable in all the circumstances of the case to secure the safety of the persons working thereon.

(18) *Stage from which a person is liable to fall more than 2 metres or into water*—(a) This sub-rule applies to stages from which a person is liable to fall at a distance of more than 2 metres or into water in which there is s risk of drowning.

(b) Every stage to which this sub-rule applies—

i. Shall so far as is reasonably be closely boarded, planked or plated;

ii. Shall be so constructed or placed that a person is not liable to fall as aforesaid through a gap in the staging not being a gap it necessary and not larger than necessary having regard to the nature of the work being carried on; and

iii. Shall be at least 45 centimetres wide.

(c) Every side of a stage to which this sub-rule applies shall--

iii) If it is not a side immediately adjacent to any part of a vessel, be fenced (subject to the provisions of Clauses (d) to (g) of this sub-rule) with a guard rail or guard rails to a height of at least one meter above the stage which rail or rails shall be so placed as to prevent so far as practicable the fall of persons from the stage or from any raised standing place on the stage; or

iv) If it is a side immediately adjacent to any part of a vessel, be placed as near as practicable to that part having regard to the nature of the work being carried on and to the nature of the structure of the vessel.

(d) In the case of stages which are suspended by ropes or chains and which are used solely for painting the fencing required by sub-Clause (i) of the preceding clause may be provided by means of taut guard-rope or taut guard-ropes.

(e) No side of stage or, as the case may be, no part of the side of stages need be fenced in pursuance of Clause (c) (i) of this sub-rule in cases where, and so long as, the nature of the work being carried on, makes the fencing of that side or, as the case may be, that part impracticable.

(f) Guard-rails provided in pursuance of Clause (c) (i) of sub-rule may be removed for the time and to the extent necessary for the access of persons or for the movement of materials, but guard-rails removed for either of these purposes shall be replaced as soon as practicable.

(g) Where it is not reasonably practicable to comply with the provisions of Clause (c) (i) of this sub-rule, workers shall be provided with suitable safety belts equipped with life lines which are secured with a minimum amount of slack to a fixed structure.

(19) *Fencing of dry docks*—(a) Fencing shall be provided at or near the edges of a dry dock at ground level, including edges above flights of steps and chutes for materials. The height of such fencing shall at not point be less than one meter.

(b) Such fencing as aforesaid shall be kept in position save when and to the extent to which its absence is necessary (whether or not for the purposes of the operation) for the access of persons, or for movement of materials or vessels or the traffic or working, or for repairs, but fencing removed for any of these purposes shall be kept readily available and shall be replaced as soon as practicable.

(20) *Protection of openings*—(a) Every side or edge of an opening in a deck or tank top of a vessel being a side or edge which may be a source of danger to the workers, except where and while the opening is securely covered or where the side or edge is protected to a height of not less than 75 centimetres by a coaming or other part of the vessel, be provided with fencing to a height of not less than 90 centimetres above the edge or side and such fencing shall be kept in position save when and to the extent to which its absence is necessary (whether or not for the purposes of the operation) for the access of persons, or the movement of materials or for traffic or working, or for repair, but fencing removed for any of these purposes shall be kept readily available and shall be replaced as soon as practicable.

(b) Clause (a) of this sub-rule shall not apply—

i. To that part of an opening in a deck or tank top which is at the head of a stairway or ladder way intended to be used while the operations are being carried on; or

ii. To parts of a deck or tank top which are intended to be plated, except such parts where the plating has necessarily to be delayed so that the opening may be used for the purpose of the operations.

(21) *Fall of articles from stages*—Where workers are at work outside a vessel on a stage adjacent to part of the structure of the vessel and other workers are at work directly beneath that stage, the planks of the stage shall be in such a position that no article liable to cause injury to the workers can fall between the planks, and the inside plank of the stage shall be placed as near as practicable to the structure of the vessel having regard to the nature of the work being carried on.

(22) Boxes for rivets, etc.—(a) Boxes or other suitable receptacles for rivets, nuts, bolts and welding rods shall be provided for the use of workers.

(b) It shall be the duty of the workers to use, so far as practicable, the boxes or other suitable receptacles so provided.

(23) *Throwing down materials and articles*—(a) Subject to the provisions of Clause (b) of this sub-rule, parts of staging tools and other articles and materials shall not be thrown down from a height where they are liable to cause injury to workers, but shall be properly lowered.

(b) When the work to be done necessarily involves the throwing down from a height of articles or materials, conspicuous notice shall be pasted to warn persons from working or passing underneath the place from which articles or materials may fall, or the work shall be done under the direct supervision of a competent person in authority.

(c) No person shall throw any articles or materials from a height except in accordance with the requirements of this sub-rule.

(24) *Loose articles or materials*—So far as practicable, steps shall be taken to minimise the risk arising from loose articles or materials being left lying about in any place from which they fall on workers or persons passing underneath.

RAISING AND LOWERING

(25) *Secureness of loads*—(a) Loads shall be securely suspended or supported whilst being raised or lowered and all reasonable precautions shall be taken to prevent danger from slipping or displacement.

(b) Where by reason of the nature of position of the operations load is liable, whilst being moved by a lifting machine or lifting tackle, to come into contact with any object so that the object may become displaced, special measures be adopted to prevent the danger so far as reasonably practicable.

(26) *Support of lifting machine and lifting tackle*—Every lifting machine and all lifting tackle shall be adequately and suitably supported or suspended having regard to the purpose for which it is used.

(27) *Wire ropes with broken wires*—No wire ropes shall be used if in any length of ten diameters the total number of visible broken wires exceeds five percent of the total number of wires, or if the rope shows signs of excessive wear or corrosion or other serious defect.

(28) *Splices in wire ropes*—A thimble or loop splice made in any wire rope shall have at least cut out of each strand. All tucks shall be against the lay of the rope;

Provided that this sub-rule shall not operate to prevent the use of another form of splice which can be shown to be as efficient as the form of splice specified in this sub-rule.

(29) *Knotted chains, etc*—(a) No chain or wire rope shall be used when there is a known tide in any part thereof.

(b) No chain which is shortened or joined to another chain by means of bolts and nuts shall be used:

Provided that this does not exclude the use of a chain bolted or joined to another chain by an approved and properly constructed attachment.

(30) *Precaution against damage to chains and ropes*—Appropriate steps shall be taken to prevent, so far as practicable, the use of chains or ropes for raising or lowering in circumstances in which they are in or liable to come into contact with sharp edges of plant, materials or loads, or with sharp edges of any part of the vessel on which work is carried out.

(31) *Loads on lifting appliances*—No load shall be left suspended from a lifting appliance other than a self-sustaining, manually operated lifting appliance unless there is competent person in charge of the appliance while the load is so left.

(32) *Heavy loads*—Where there is reason to believe that a load being lifted or lowered on a lifting appliance weighs more than 20 tonnes its weight shall be ascertained by means of an accurate weighing machine or by the estimation of a person competent for the purpose, and shall be clearly marked on the load:

Provided that this sub-rule shall not apply to any load lifted or lowered by a crane which has either a fixed or a derricking jib and which is lifted with an approved type of indicator in good working order which—

a) Indicates clearly to the driver or person operating the crane when the load being carried approaches the safe working load of the crane for the radius of the job which the load is carried; and
b) Gives an efficient sound signal when the load moved is in excess of the safe working load of the crane at that radius.

PRECAUTIONS AGAINST ASPHYXIATION INJURIOUS FUMES OR EXPLOSIONS

(33) *Certification for entry into confined spaces likely to contain dangerous fumes*—A space shall not be certified under Section 36 (3) (a) of the Act, unless—

(a) Effective steps have been taken to prevent any ingress of dangerous fumes;
(b) Any sludge or other deposit liable to give off dangerous fumes has been removed and space that contains no other material liable to give of dangerous fumes; and
(c) The space has been adequately ventilated and tested for dangerous fumes and has a supply of air adequate for respiration;

Provided that no account shall be taken for the purposes of Clause (b) of this sub-rule of any deposit, or other material liable to give off dangerous fumes in insignificant quantities only.

(34) *Precautions against shortage of oxygen*—No person shall enter or remain in any confined space in a vessel, being a confined space in which there is reason to apprehend that the proportion of oxygen in the air is so low as to involve risk of persons being overcome, unless either—

(a) The space has been and remains adequately ventilated and a responsible person has tested it and certified that it is safe for entry without breathing apparatus; or
(b) He is wearing suitable breathing apparatus and a safety belt securely attached to a rope, the free end of which is held by a person standing outside the confined space.

(35) *Rivet fires*—(a) Rivet fires shall not be taken into or used in or remain in any confined space on board or in a vessel unless there is adequate ventilation to prevent the accumulation of fumes.

(b) No person employed shall move a rivet fire into any confined space on board or in a vessel unless he has been authorised by employer to move the fire into that space.

(36) *Gas cylinders and acetylene generators*—(a) No cylinder which contains or has contained oxygen or any flammable gas or vapour at a pressure above atmospheric pressure and no acetylene generating plant, shall be installed or placed within 5 meters of any substantial source of heat (including any boiler or furnace when alight) other than burner or blow-pipe operated from the cylinder or plant.

(b) No such cylinder and no such plant shall be taken below the weather deck in the case of a vessel undergoing repair, or below the top-most completed deck in the case of a vessel under construction, unless it is installed or placed in a part of the vessel which is adequately ventilated to prevent any dangerous concentration of gas or fumes.

(37) *Further provision as to acetylene generators*—(a) The following provisions shall be observed as respects any acetylene generating plant:

i) No such plant shall be installed or placed in any confined space unless effective and suitable provision is made for securing and maintaining the adequate ventilation of that space so as to prevent, so far as practicable, any dangerous accumulation of gas;

ii) Any person attending or operating any such plant shall have been fully instructed in its working and a copy of the maker's instructions for that type of plant shall be constantly available for his use;

iii) The charging and clearing of such plant shall, so far as practicable, be done during daylight; and

iv) Partly spent calcium carbide shall not be re-charged into an acetylene generator.

(b) No person shall smoke or strike a light or take a naked light or a lamp or in into any acetylene generator house or shed or in or into dangerous proximity to any acetylene generating plant in the open air or on board a vessel:

Provided that this clause shall not apply as respect a generator in the open air or on board a vessel which, since it was last charged has been thoroughly cleaned and freed from any calcium carbide and acetylene gas.

(c) A prominent notice prohibiting smoking, naked lights and lamps shall be exhibited on or near every acetylene generating plant whilst it is charged or is being charged or is being cleaned.

(38) *Construction of plant for cutting, welding or heating metal*—(a) Pipes or hoses for the supply of oxygen or any flammable gas or vapour to any apparatus for cutting, welding or heating metal shall be of good construction and sound material and be properly maintained.

(b) Such pipes or hoses shall be securely attached to the apparatus and other connections by means of suitable clips or other equally effective appliances.

(c) Efficient reducing and regulating valves for reducing the pressure of the gases shall be provided and maintained in connection with all cylinders containing oxygen or any flammable gas or vapour at a pressure above atmospheric while the gases or vapours from such cylinders are being in any process of cutting, welding or heating metal.

(d) Where acetylene gas is used for cutting, welding or hearing metal—

i) A properly constructed and efficient back-pressure valve and flame arrester shall be provided and maintained in the acetylene supply pipe between each burner or blow-pipe and the acetylene generator, cylinder or container from which it is supplied, and shall be placed as near as practicable to the burner or blow-pipe, except that these requirements shall not apply where an acetylene cylinder serves only one burner or blow-pipe; and

ii) Any hydraulic valve provided in pursuance of the preceding sub-clause shall be inspected on each day by every person who uses the burner or blow-pipe on that day and it shall be the duty of every worker who used the burner or blow-pipe to inspect the hydraulic valve accordingly.

(e) The operating valves of burners or blow-pipes to which oxygen or any flammable gas or vapour is supplied for the purpose of cutting, welding or heating metal shall be so constructed, or the operating mechanism shall be so protected, that the valves cannot be opened accidentally.

(39) *Precaution after use of apparatus for cutting, welding or heating metal*—(a) In the case of apparatus on board a vessel used for cutting, welding or heating metal with the aid of oxygen or any flammable gas or vapour supplied at a pressure above atmospheric pressure the precaution specified in the following clauses of this sub-rule shall be taken when such use ceases for the day or for a substantial period and the apparatus is to be left on board, but need not be taken when such use is discontinued merely during short interruptions of work. The requirement in Clauses (c) and (d) of this sub-rule shall not apply during a meal interval; provided that a responsible person is placed in charge of the plant and equipment referred to therein.

(b) Supply valves of cylinders, generators, and gas mains shall be securely closed and the valve key shall be kept in the custody of a responsible person.

(c) Movable pipes or hoses used for conveying oxygen or flammable gas or vapour and the welding and cutting torches shall, in the case of a vessel undergoing construction, be brought to the top most completed deck, in the case of a vessel undergoing repair, to a weather deck or in either case to some other place of safety which is adequately ventilated to prevent any dangerous concentration of gas or fumes:

Provided that where, owing to the nature of the work, it is impracticable to comply with the foregoing requirements of this clause the pipes or hoses shall be disconnected from cylinders, generators or gas mains, as the case may be.

(d) When cylinders or acetylene generating plant have been taken below deck as permitted by Clause (b) of sub-rule (36) such cylinders or acetylene generating plant shall be brought to a weather deck or, in the case of a vessel undergoing construction, to the top most completed deck.

(40) *Naked light and hot work oil carrying vessel*—(a) Subject to the provisions of Clause (b) of this sub-rule and to the provisions of sub-rule (48) and without prejudice to the provisions of sub-rule (46) and (47), naked light, fire or lamp (other than a safety lamp of a type approved for the purpose of this sub-rule)—

i) Shall be permitted to, or to be in, or any hot work permitted to be carried out in any part of a tanker, unless, since oil was last carried in that tanker, a naked light certificate has been obtained and is in force in respect of those parts of the tanker for which, in the opinion of competent analyst, a naked light certificate is necessary:

Provided that a naked light, fire or lamp of a kind specified in writing by a competent analysts may be applied tom, or be, in any hot work of a type specified by him carried on any part of the tanker so specified.

ii) Shall be permitted—

(aa) to be in any oil tank on board or in a vessel in which oil-tank the oil last carried was oil having a flash point of less than 23 degrees centigrade or was liquid methane, liquid propane or liquid butane, nor any hot work permitted to be carried out in any such oil tank or vessel, unless a naked light certificate has previously been obtained on the same day and is in force in respect of that oil-tank and of any oil-tank, compartment or space adjacent thereto;

(bb) to be applied to the outer surface of any oil-tank on board or in a vessel in which oil-tank the oil last carried was such oil as aforesaid, nor any work of such a nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours permitted to be carried out on the outer surface of such oil-tank or vessel, unless a naked light certificate has previously been obtained on the same day and is in force in respect of that oil-tank;

(cc) to be applied to the outer surface of, or to be in, any compartment or space adjacent to an oil-tank on board or in a vessel in which oil-tank the oil last carried was such oil as aforesaid, nor any hot work permitted to be carried out in such compartment or space as aforesaid, nor any work of such nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours, permitted to be carried out on the outer surface of such compartment or space, unless a naked light certificate has previously been obtained on the same day and is in force in respect of that compartment or space:

Provided that where in any such case referred to in paragraph (aa), (bb) or (cc) of this sub-clause a competent analyst has certified that daily naked certificates are unnecessary or are necessary only to specified extent, such a daily certificate need not be obtained or, as the case may be, need only be obtained or to the specified extent;

iii) Shall be permitted to be applied to the outer surface of, or to in, any oil tank on board or in a vessel nor any hot work permitted to be carried out in any such oil-tank or vessel, nor any work of such nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours, permitted to be carried out on the outer surface of the oil-tank or vessel, unless, since oil was last carried in that oil tank, naked light certificate has been obtained and is in force in respect of that oil-tank;

iv) Shall be permitted to be applied to the outer surface of, or to be in, any compartment or space adjacent to an oil-tank on board or in a vessel nor any hot work permitted to be carried out in any such compartment or space, unless, since oil was last carried as cargo in that oil tank, a naked light certificate has been obtained and is in force in respect of that compartment or space.

(b) Notwithstanding anything in Clause (a) of this sub-rule, heated rivets may be permitted in any place without naked light certificate being in force in respect of that place if expressly so authorised by a competent analyst who certifies that after adequate and suitable testing he s satisfied regard to all the circumstances of the case, including the likelihood or otherwise of the atmosphere becoming flammable, that the place is sufficiently free from flammable vapour, but such heated rivets shall, where practicable, be passed through tubes.

(c) No person shall introduce, have or apply naked light, fire or lamp (other than safety lamp of a type approved for the purpose of this sub-rule) into, in or to any place where they are prohibited by this sub-rule.

(d) No person shall carry out hot work or any work of such nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours, in any place or any surface where they are prohibited by this sub-rule.

(e) In this sub-rule the expression 'competent analyst' means an analyst who is competent to give a naked light certificate.

(41) *Entering oil-tanks*—(a) No person (other than an analyst entering with a view to issuing a certificate of entry shall, unless he is wearing a breathing apparatus of a type approved for the purpose of this sub-rule, enter or remain in an oil-tank on board or in a vessel unless, since the oil-tank last contained oil, a certificate of entry has been obtained and is in force in respect of the tank.

(b) Without prejudice to Clause (a) of this sub-rule, no person (other than an analyst entering as aforesaid) shall be allowed or required to enter or remain in an oil-tank on board or in a vessel in which oil-tank the oil last carried was oil having a flash point of less than 23 degrees centigrade unless, since the oil-tank last contained oil, an analyst has certified that the atmosphere is sufficiently free from flammable mixture.

(c) The provisions of this sub-rule are without prejudice to the requirements of sub-rule (34)

(42) *Duration of certificates*—Any naked light certificate or certificate of entry may be issued subject to a condition that shall not remain in force after a time specified in the certificate.

(43) *Posting certificates*—Every occupier for whom a naked light certificate or a certificate of entry is obtained shall ensure that the certificate or a duplicate thereof is posted as soon as may be and remains posted in a position where it may be conveniently read by all persons concerned.

(44) *Maintaining safe atmosphere*—(a) When conditions in an oil-tank in respect of which a naked light certificate has been issued are such that there is a possibility of oil vapour being released from residues or other sources, test shall be carried out by a competent analyst at such intervals as may be required so as to ensure that the conditions in the tank are maintained safely.

(b) Whenever hot work is carried on or a naked light, fire or lamp is allowed to be, on the weather deck over spaces, in respect of which a naked light certificate has not been issued, all covers of manholes and openings on deck and all valves (except those which are connected to high event pipes) connecting the weather deck with the said paces, shall be closed.

(c) A record of all the test carried out for the purpose of sub-rules (34), (40) and (41) shall be maintained in a register which should furnish the date, time, location and results of the test.

(45) *Cleaning of oil-tank*—(a) Subject to the provisions of sub-rule (48), before a test for flammable vapour is carried out with a view to the issue of a naked light certificate for the purposes of sub-rule (40) in respect of an oil-tank on board or in a vessel, that oil-tank shall, since oil was last introduced into the tank, be cleaned and ventilated in accordance with Clause (b) of this sub-rule.

(b) The said cleaning and ventilation shall be carried out by the following method:

i) The oil-tank shall be treated in such manner and for such period as will ensure the vaporisation of all volatile oil;

ii) All residual oil and any sludge or other deposit in the oil-tank shall be removed there from; and

iii) After the oil-tank has been so cleaned—

(aa) all covers of manholes and other openings therein shall be removed and it shall be thoroughly ventilated by mechanical or other efficient means with a view to the removal of all oil vapour; and then.

(bb) the interior surfaces, if any deposit remains thereon, shall be washed or scraped down;

(46) *Invalidation of certificates*—(a) If during the course of work in, or to the outer surface of, any part of a tanker or aircraft carrier, any pipe or tank joint is opened or broken or any other event occurs so that there is a risk of oil vapour entering or arising in that part of the tanker or air, craft carrier, that work shall be suspended and thereafter any certificate of entry previously issued in respect of any oil-tank in that part and any naked light certificate previously issued in respect of that part shall be no longer in force.

(b) If (in the case of a vessel other than a tanker or aircraft carrier) during the course of work in any oil-tank or any compartment or space adjacent thereto, any pipe or tank joint is opened or broken or any other event occurs so that there is a risk of oil vapour entering or arising in the oil-tank or in nay compartment or space adjacent thereto that work shall be suspended and thereafter any certificate of entry previously issued in respect of the oil-tank and any naked light certificate thereto shall be no longer in force.

(47) *Provisions as to work in other compartments or space*—(a) Without prejudice to the other provisions of this rule, if the presence of oil in such quantity and in such position as to be likely to give rise to fire or explosion is detected in any part of a vessel, being a part to which this sub-rule applies and in which repairs of the following kind are to be or are being undertaken that is to say, repairs, involving the use of a naked light, fire or lamp (other than a safety lamp of a type approved for the purpose of sub-rule (40), or involving hot work, such repairs shall not be started or continued until a naked light certificate has been issued or, as the case may be, reissued in respect of that part of the vessel.

(b) This sub-rule shall apply to bilges, shaft tunnels, pump rooms and to compartment and space other than those to which Clause (a) (iv) of sub-rule (40) applies.

(48) *Exemptions*—If the Chief Inspector is satisfied, by reason of the nature of the work and the circumstances in which it is carried out, that any provisions of sub-rules (33) to (45) or part thereof can be suspended or relaxed without danger to the health or safety of any person, he may grant suspension or relaxation in writing specifying such conditions as he may consider fit. Any such suspension or relaxation may be revoked at any time.

PRECAUTION IN USE OF ELECTRICAL ENERGY

(49) *Earthing*—Electrical energy other than that generated by an independent generating unit on board shall not be taken fir use, or used in, or in connection with any of the operations unless the body of the ship is insecurely earthed in such a manner as to ensure an immediate and safe discharge of energy to the earth. A ship or vessel shall not be considered as securely earthed for the purpose of the sub-rule only on account of it being partly submerged in water.

(50) *Arc welding—(*a) Electric arc welding shall not be carried on in connection with any the operations unless separate and fully insulated welding return conductor or conductors, as the case may be, of adequate electrical capacity are provided for return of the current to the transformer or generator of the welding set.

(b) The return end of source of the welding current shall not be earthed.

(c)All work in which welding be carried on shall be securely earthed independently to an earth electrode by means of conductor or conductors, as the case may be, of adequate capacity, unless all such work are connected to any structure of the ship or vessel in such a manner as to ensure adequate connection to earth as aforesaid.

(51) *Cutting of energy in certain cases*—Electrical energy shall be cut off from all portable electric tools and manual electrode holders within any tank, compartment or space referred to in sub-rules (34) and (40) or any other confined space during all times when such tools or holders are not in operation:

Provided that for determining whether any such portable electric tool or electrode holder is not in operation, no account shall be taken of brief interruption of work occurring during normal working:

Provided further that energy may not be cut off from any such equipment if a responsible person is left in charge of it in such tank, compartment or space concerned:

Provided further that cutting of all electrical energy by operation of any switch or control provided on the portable tool or electrode holder itself should not be taken as fulfilling the requirements of this sub-rule.

MISCELLANEOUS SAFETY PROVISIONS

(52) *Lighting*—All parts of a vessel and all other places where operations are being carried on, and all approaches to such parts to places to which a worker may be required to proceed in the course of his employment shall be sufficiently and suitably lighted. In providing such lighting, due regard shall be given to avoidance of glare and information of shadows, to the safety of the vessel and cargo, of the navigation of other vessels; and to any local statutory requirements as to the lighting of the harbour or deck.

(53) *Work in boilers, etc.*—(a) No work shall be permitted in any boiler furnace or boiler flute until it has been sufficiently cooled to make work safe for the workers.

(b) Before any worker enters any steam boiler which is one of a range of two or more boilers—

i) All inlets through which steam or hot water might otherwise enter the boiler from any part of the range shall be disconnected from that part; or

ii) All valves or taps controlling such entry shall be closed and securely locked.

(c) While workers remain in any steam boiler to which Clause (b) of this sub-rule applies all such inlets as are referred to in that clause shall remain disconnected or all such valves or taps as are therein referred to shall remain closed and securely locked.

(d) No worker shall be allowed or required to enter or remain in and no person shall enter or remain in, any steam boiler to which Clause (b) of this sub-rule applies unless the provisions of that clause are being compiled with.

(54) *Hatch beams*—The hatch beams of any hatch in use for the operations shall, if not moved, be adequately secured to prevent their displacement.

(55) *Jumped-up bolts*—Bolts which have been jumped up and rescrewed shall not be used for securing plates on the sides of vessels, and no workers shall use such bolts for this purpose.

(56) *Worker in or on life bolts*—(a) Before workers are permitted to work in or on any life boat, either stowed or in suspended position, precaution shall be taken to prevent the boat from falling due to accidental trapping of the releasing gear or movement of the davits, and capsizing of the boat if in docks.

(b) Workers shall not be permitted to remain in life boat while the life boats are being hoisted into final stowed position.

PROTECTIVE WEAR

(57) *Hand protection*—Adequate protection for the hands shall be available for all workers when using, cutting or welding apparatus to which oxygen or any flammable gas or vapour is supplied at a pressure greater than atmospheric pressure or when engaged in machine caulking or machine riveting or in transporting or staking plates or in handling plates at machines.