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Part III—Section 1(a)

General Statutory Rules, Notifications, Orders, Regulations, etc., issued by Secretariat Departments.

NOTIFICATIONS BY GOVERNMENT

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DTP—III-1(a)-(20)—1

NOTIFICATIONS BY GOVERNMENT

LABOUR AND EMPLOYMENT DEPARTMENT

Amendments to the Tamil Nadu Factories Rules, 1950

[G.O. Ms. No. 68, Labour and Employment (M2), 19th March 2020,
பங்குனி 6, விகாரி, திருவள்ளுவர் ஆண்டு–2051.]

No. SRO A-11/2021.—In exercise of the powers conferred by Section 87 read with Section 112 of the Factories Act, 1948 (Central Act LXIII of 1948), the Governor of Tamil Nadu hereby makes the following amendments to the Tamil Nadu Factories Rules, 1950, the draft of the same having been previously published as required by sub-section (1) of Section 115 of the said Act:-

In the said Rules,

AMENDMENTS

(1) in rule 95, in sub-rule (1), for item 28, the following item shall be substituted, namely:-

"28. Operations involving High Noise and Vibration Levels."

(2) for Schedule XIX annexed to rule 95, the following schedule shall be substituted namely:-

"SCHEDULE XIX

Manipulation of Stone or any other material containing free Silica

1. **Application.-** This Schedule shall apply to all factories or parts of factories in which manipulation of stone or any other material containing free silica is carried on. This shall include the manufacturing processes pertaining to Stone Crushers, Gem and Jewellery, Slate Pencil Making, Agate Industry, Cement Industry, Pottery and Glass Manufacturing.

2. **Definitions.-** For the purpose of this Schedule-

   (a) "manipulation" means crushing, breaking, chipping, dressing, grinding, sieving, mixing, grading or handling of stone or any other material containing free silica or any other operation involving such stone or material;

   (b) "stone or any other material containing free silica" means a stone or any other solid material containing not less than five percent by weight of free silica.

3. **Preventive Control Measures.-** No manipulation shall be carried out in a factory or part of a factory unless the following preventive control measures are adopted, namely:-

   (1) Engineering Control Measures:

   (a) Wet Methods:

   (i) Airborne Silica Dust should be minimized or suppressed by applying water to the process or clean up.

   (ii) Water should be provided for drilling or sawing of concrete or masonry.

   (b) Ventilation:

   (i) An effective Local exhaust system should be provided and maintained to control/remove silica dust from industrial processes.

   (ii) Dilution / ventilation may be used to reduce free silica dust concentration to below the permissible limits in large areas.

   (iii) Dust collectors / High Efficiency Particle Air filter (HEPA) should be set up so that dust shall be removed from the source and all transfer points to prevent contaminating work areas.

   (iv) Ventilation systems should be kept in good working conditions.

   (c) Isolation:

   (i) Containment methods should be used while carrying out sand blasting.

(ii) Cabins of vehicles or machinery cutting and drilling that might contain free silica should be enclosed and sealed.

(d) Dust Control:

(i) Vacuum System with High Efficiency Particle Air (HEPA) filter shall be used to remove dust from work areas and at all transfer points.

(ii) The belt conveyors transferring crushed material shall be totally enclosed throughout its length:

Provided that such control measures as abovesaid are not necessary if the process or operation itself is such that the level of dust created and prevailing does not exceed the permissible limit of exposure specified in the Second Schedule of the Factories Act, 1948 (Central Act 63 of 1948).

(2) Medical Controls Measures:

(i) The occupier of every factory in which a worker employed in the processes specified in paragraph 1, shall ensure that every worker employed be examined by a Certifying Surgeon within fifteen days of his first employment. Such medical examination shall include pulmonary function test and chest X-ray Posterior Anterior (PA) view to be compared with standard International Labour Organisation (I.L.O) Radiographs on Pneumoconiosis which shall be read by a radiologist specialized / trained in the said field. No worker shall be allowed to work after fifteen days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(ii) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every twelve months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include the test as specified in sub-paragraph (1) that is, pulmonary function test except chest X-ray Posterior Anterior (PA) view to be compared with standard International Labour Organisation Radiographs on Pneumoconiosis which shall be read by a radiologist specialized / trained in the field of reading International Labour Organisation Radiographs on Pneumoconiosis and the chest X-ray which shall be carried out at least once in three years.

(iii) Every worker employed in any of the aforesaid processes on the date on which the schedule comes into force shall be radiological examined by the qualified Radiologist at the cost of the occupier using a standard size X-ray plates and the power of the X-ray machine shall be more than 300 milli ampere (mA) such radiological examination shall be examined as stated in sub-paragraph-1. The report of such X-ray shall be submitted to the Certifying Surgeon for within three months of the said date.

(iv) The Certifying Surgeon after examining a worker, shall issue a Certificate of Fitness in Form No. 27. The record of re-examinations carried out shall be entered in the certificate and the certificate shall be kept in the custody of the Manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests shall also be entered by the Certifying Surgeon in a Health Register in Form No. 17. The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector and produce on demand.

(v) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker he shall make a record of his findings in the said Certificate and the health register. The entry of his findings in these documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the processes shall be provided with alternate placement facilities unless he fully is incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(vi) No person who has been found unfit to work as said in sub- paragraph (5) above shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

(vii) If a worker already in employment and declared unfit by the Certifying Surgeon shall not be allowed to work on any of the processes specified in paragraph 1, unless he has been examined again along with standard size chest X-ray plate from a qualified Radiologist and such Radiological examination shall be examined as stated in sub-paragraph 1, at the cost of the occupier and has been certified to be fit to work on the said processes again.

(viii) For the purpose of medical supervision by the Factory Medical Officer so appointed by the occupier shall be provided for his exclusive use a room in the factory premises which shall be properly cleaned, adequately lighted ventilated and furnished with a screen, a table with office stationary, chairs and other facilities and other instruments including X-ray arrangements for such examinations and such other equipments as may be prescribed by the Chief Inspector for time to time. The Factory Medical Officer so appointed shall perform the following duties:-

(a) Maintain health register;

(b) Undertake medical supervision of persons employed in the factory;

(c) Look after health, education and rehabilitation of sick, injured or affected workers;

(d) Carry out inspection of work rooms where dangerous operations are carried out and advise the management of the measures to be adopted for the protection of health of the workers employed therein.

(ix) The Health Records of the workers exposed to silicosis, shall be maintained by the occupier and kept up to a minimum period of 40 years from the beginning of the employment or 15 years after retirement or cessation of the employment, whichever is later and shall be accessible to workers concerned or their representatives.

(x) The record of medical examinations and appropriate tests carried out by the said Factory Medical Officer shall be maintained in separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector and produce on demand.

(3) Administrative Control Measures:

(a) Work place / Environment Monitoring: The occupier to ensure work place / environment monitoring to be performed to determine magnitude of exposure / concentration to evaluate engineering controls, selecting respiratory protection, work practices and the need for medical surveillance.

(i) Exposure / concentration measurements should be made in the Workers' actual breathing zone.

(ii) Total sampling time shall be at least seven hours.

(iii) Work place / Environment Monitoring shall be repeated quarterly.

(iv) The report of dust sampling by occupier shall be made available to the public.

(b) Training / Awareness: Workers shall be trained in the following:-

(i) Health effects of free silica dust exposure.

(ii) Operations and material that produce free silica dust hazards.

(iii) Engineering controls and work practice controls that reduce dust concentration.

(iv) The importance of good housekeeping and cleanliness.

(v) Proper use of personal protective equipment such as respirators etc.

(vi) Personal hygiene practices to reduce exposure.

(c) Maintenance of floors:

(i) All floors or places where fine dust is likely to settle on and whereon any person has to work or pass shall be of impervious material and maintained in such condition that they can be thoroughly cleaned by a moist method or any other method which would prevent dust being airborne in the process of cleaning once at least during each shift.

(ii) For this purpose dry sweeping or compressed air shall be used for cleanup of dust or wet methods or vacuum system with a High Efficiency Particle Air (HEPA) filter shall be used.

(iii) Dust on over head ledges and equipment should be removed before it becomes air borne due to vibration traffic and random air current.

(d) Change room and washing facilities:

(i) Washing and bathing facilities shall be conveniently located at a place easily accessible to the workers.

(ii) Cloak room with individual lockers shall be provided for workers to store uncontaminated clothing.

(iii) Workers shall take bath and change the work clothes before they leave the work site.

(iv) Work clothes shall not be cleaned by blowing or shaking.

(v) Eating/lunch areas shall be located away from exposed areas.

(e) Display of Notices:

(i) Warning signs / Posters shall be displayed conspicuously in a prominent place.

(ii) The Warning signs / Poster shall contain the Hazards and precautions to be taken.

(iii) The display of notice shall be in the local language and also in the language understood by the majority of the workers.

(f) Personal Protective Equipment:

The occupier of the every factory to which this schedule apply shall provide the following Personal Protective Equipments (PPEs) as per relevant National Standards or International Standards and as applicable to a given work place:-

(i) Dust respirator

(ii) High Efficiency Particle Air (HEPA) filter respirator or fume respirator.

(iii) High Efficiency Particle Air (HEPA) filter respirator with full face piece.

(iv) Self contained breathing apparatus (SCBA)

(v) Supplied air respirator with a full face piece, helmet or hood.

(vi) Self contained breathing apparatus (SCBA) with full face piece.

(vii) Powered air purifying respirator with a High Efficiency Particle Air (HEPA) filter.

4. Prohibition relating young persons.-

No young person shall be employed or permitted to work in any of the operations involving manipulation or at any place where such operations are carried out.

5. Exemptions.-

(1) If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or in frequency of the processes or for any other reason, all or any of the provisions of this Schedule is not necessary for protection of the workers in the factory, the Chief Inspector may issue a certificate in writing, which he may in his discretion revoke at any time, exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.

(2) The notification of Silicosis and free silica related occupational diseases by Factory Medical Officer should be strictly enforced and in case of any Violation, the Factory Medical Officer shall be liable to be prosecuted under sub-section (4) of section 89 of the Factories Act, 1948 (Central Act 63 of 1948).".

(3) for Schedule XXVIII annexed to rule 95, the following Schedule shall be substituted, namely:-

"SCHEDULE XXVIII

Operations involving High Noise and Vibration Levels

Part-A

High Noise Levels:

1. Application.- This Part of the schedule shall apply to all operations in any manufacturing process having high noise level.

2. Definitions.- For the purpose of this schedule, -

(a) "Noise" means any unwanted sound;

(b) "High noise level" means any noise level measured on the A-weighted scale is 85 dB or above;

(c) "Decibel" means one-tenth of "Bel" which is the fundamental divisions of a logarithmic scale used to express the ratio of two specified or implied quantities, the number of "Bels" denoting such a ratio being the logarithm to the base the of 10 of this ratio. The noise level (or the sound pressure level) 6 corresponds to a reference pressure of 20 x 10 Newton per square meter or 0.0002 dynes per square centimeter which is the threshold of hearing, that is, the lowest sound pressure level necessary to produce the sensation of hearing in average healthy listeners. The decibel in abbreviated form is dB;

(d) "Frequency" is the rate of pressure variations expressed in cycles per second or hertz;

(e) "dBA" refers to sound level in decibels as measured on a sound level meter operating on the A-weighting network with slow meter response; and

(f) "A-weighting" means making graded adjustments in the intensities of sound of various frequencies for the purpose of noise measurement, so that the sound pressure level measured by an instrument reflects the actual response of the human ear to the sound measured.

3. Protection against noise.- (1) In every factory, suitable engineering control or administrative measures shall be taken to ensure, so far as is reasonably practicable, that no worker is exposed to sound levels exceeding the maximum permissible noise exposure levels specified in Tables 1 and 2.

TABLE 1

PERMISSIBLE EXPOSURE IN CASES OF CONTINUOUS NOISE.

Total time of exposure (continuous or a number of number of short term exposures) per day, in hours.	Sound pressure level in or dBA per day, in hours.
8	85
6	87
4	90
3	92
2	95
1 1/2	97
1	100
3/4	102
1/2	105
1/4	110

Explanations.- (1) No exposure in excess of 110 dBA is to be permitted.

(2) For any period of exposure falling in between any figure and the next higher or lower figure as indicated in column 1, the permissible sound pressure level is to be determined by extrapolation on a proportionate basis.

TABLE 2

PERMISSIBLE EXPOSURE LEVELS OF IMPULSIVE OR IMPACT NOISE.

Peak sound pressure level in dB.	Permitted number of impulses or impact per day.
140	100
135	315
130	1,000
125	3,160
120	10,000

Explanations.- 1. No exposure in excess of 140 dB peak sound pressure level is permitted.

2. For any peak sound pressure level falling in between any figure and the next higher or lower figure as indicated in column 1, the permitted number of impulses or impacts per day is to be determined by extrapolation on a proportionate basis.

(2) For the purposes of this part of the schedule, if the variations in the noise level involve maximum at intervals of one second or less, the noise is to be considered as a continuous one and the criteria given in Table 1 would apply. In other cases, the noise is to be considered as impulsive or impact noise and the criteria given in Table 2 would apply.

(3) When the daily noise exposure is composed of two or more periods of noise exposure at different levels their combined effect should be considered, rather than the individual effect of each. The mixed exposure should be considered to exceed the limit value if the sum of the fractions.

C1 C2 Cn

\+ + ... exceeds unit p-1

T1 T2 Tn

Where the C1, C2 etc., indicate the total time of actual exposure at a specified noise level and T1, T2, etc. denote the time of exposure permissible at that level. Noise exposure of less than 90 dBA may be ignored in the above calculation.

(4) (a) Where it is not possible to reduce the noise exposure to the levels specified in the Tables in sub - paragraph (1) of paragraph 3 by reasonably practicable engineering control or administrative measures, the noise exposure shall be reduced to the greatest extent feasible by such control measures, and each worker so exposed shall be provided with suitable ear protectors as per relevant National or International Standards so as to reduce the exposure to noise to the levels specified in the Tables in sub - paragraph (1) of paragraph 3.

(b) The Occupier shall provide personal hearing protectors to the workers.-

(i) so as to eliminate the risk to hearing or to reduce the risk to as low a level as is reasonably practicable.

(ii) after consultation with the employees concerned or their representative.

(iii) ensure the hearing protectors is full and properly fitted, periodically checked for the effectiveness, used and maintained in good working order and repair.

(iv) ensure that workers are given periodical training in the use, care and maintenance of the Personal hearing protectors.

(5) Where the ear protectors provided in accordance with sub-paragraph (4) of paragraph 3 and worn by a worker cannot Sill attenuate the noise reaching near his ear, as determined by subtracting the attenuation value in dBA of the ear protectors concerned from the measured sound pressure level, to a level permissible under the Tables in sub-paragraph (1) of paragraph 3 as the case may be, the noise exposure period shall be suitably reduced to correspond to the permissible noise exposures specified in the Tables in sub - paragraph (1) of paragraph 3.

(6) (a) In all cases where the prevailing sound levels exceed the permissible levels specified in the Tables in sub - paragraph (1) of paragraph 3 there shall be administered an effective hearing conservation programme which shall include among other hearing conservation measures, pre-employment and periodical auditory surveys conducted on workers exposed to noise exceeding the permissible levels, and rehabilitation of such workers either by reducing the exposure to the noise levels or by transferring them to places where noise levels are relatively less or by any other suitable means.

(b) Every worker employed in areas where the noise exceeds the maximum permissible exposure levels specified in the Tables in sub - paragraph (1) of paragraph 3 shall be subjected to an auditory examination by a Certifying Surgeon within 14 days of his first employment and thereafter, shall be re-examined at least once in every 12 months. Such initial and periodical examinations shall include tests which the Certifying Surgeon may consider appropriate and shall include determination of auditory thresholds for pure tones of 125,250,500, 1000, 2000,4000 and 8000 cycles per second.

Part-B

High Vibration Levels:

1. Applications.- This Part of the Schedule shall apply to all operations in a manufacturing part of the process having high undesired vibrations.

2. Definition.-

(a) "daily exposure" means the quantity of mechanical vibration to which a worker is exposed during a working day, which takes account of the magnitude and duration of the vibration;

(b) "Vibration" means a mechanical phenomenon where by oscillations occur about equilibrium point. The oscillations may be periodic or random;

(c) "high vibration" means any exposure greater than the exposure limit value and action value specified in paragraph - 3;

(d) "exposure action value" means the level of daily exposure set out in paragraph-3 for any worker which, if reached or exceeded, requires specified action to be taken to reduce risk:

(e) "exposure limit value" means the level of daily exposure for any worker which must not be exceeded, as specified in paragraph-3;

(f) "hand-arm vibration" means mechanical vibration which is transmitted into the hands and arms during a work activity as described in sub-paragraph (1) of paragraph 3 ;

(g) "mechanical vibration" means vibration occurring in a piece of machinery or equipment or in a vehicle as a result of its operation; and

(h) "whole-body vibration" means mechanical vibration which is transmitted into the body, when seated or standing, through the supporting surface, during a work activity or as described in sub-paragraph (2) of paragraph 3.

3. Exposure limit values and action values.- (1) For hand-arm Vibration.-

(a) the daily exposure limit value is 5 m/s 2A(8);

(b) the daily exposure action value is 2.5 m/s2 A(8), and daily exposure shall be ascertained on the basis set out in the relevant National/International Standards specified in table 1 below.

(2) For whole body vibration.-

(a) the daily exposure limit value is1.15 m/s2 A(8);

(b) the daily exposure action value is 0.5 m/s2 A(8),and daily exposure shall be ascertained on the basis set out in the relevant National/International Standards.

TABLE -1

The Threshold Limit Values (TLVs) for exposure of the hand to vibration in X,Y, or Z direction of axes in the three dimensional system shall be as given below:

Total Daily Exposure Duration (hours).	Maximum value of frequency weighted acceleration (m/s2) in any direction.
4 to less than 8 hours	4
2 to less than 4 hours	6
1 to less than 2 hours	8
less than 1 hour	12

(3) Assessment of vibration exposure shall be made for each applicable direction (X, Y, Z) since vibration is a vector quantity (magnitude and direction). In each direction, the magnitude of the vibration during normal operation of the power tool, machine or work piece should be expressed by the root-mean-square (RMS) value of the frequency - weighted component acceleration, in units of meter per second squared (m/s").

4. Assessment of risk to health due to vibration at the work Place.- (1) An occupier who carries out work which is liable expose any worker from vibration to shall make a suitable and sufficient assessment of the risk created by that work to the health and safety of those and the risk assessment shall identify the control measures that need to be taken.

(2) The risk assessment should be reviewed whenever it is felt the changes in the process makes the earlier risk assessment no longer valid.

5. Engineering Control measures.- (1) The occupier shall ensure that risk from the exposure of workers to vibration is either eliminated at source or, where this is not reasonably practicable, reduced to as low a level as is reasonabiy practicable.

(2) Where it is not reasonably practicable to eliminate risk at source pursuant to sub - paragraph (1) and an exposure action value is likely to be reached or exceeded, the employer shall reduce exposure to as low a level as is reasonably practicable by establishing and implementing a programme of engineering control measures which are appropriate to this type of activity.

(3) The occupier shail ensure that the workers are provided with the following measures:-

(a) work equipment of appropriate ergonomic design which, taking account of the work to be done, produces the least possible vibration;

(b) the provision of auxiliary equipment which reduces the risk of injuries caused by vibration; and install appropriate maintenance programmes for work equipment, the workplace and workplace systems;

(4) Subject to above sub-paragraphs, the employer shall ensure that his employees are not exposed to vibration above an exposure limit value; and shall take necessary to identify the reasons for the limit being exceeded and take appropriate steps to reduce the exposure to vibration to below limit value.

Provided that where the exposure of an employees to vibration is usually below the exposure action value but varies markedly from time to time and may occasionally exceed the exposure limit value.

Provided further that any exposure to vibration averaged over one week is less than the exposure limit value and there is evidence to show that the risk from the actual pattern of exposure is less than the corresponding risk from constant

exposure at the exposure limit value; and that the risk is reduced to as low a level as is reasonably practicable, taking into account the special circumstances.

6. Medical Examination.-(1) The occupier shall ensure that the workers who are likely to be exposed to vibration at above exposure action value, are subjected to periodical medical examination once in a year. The medical examination shall include general and physical examination as well as special test for Reynaud's phenomenon.

(2) The health record of workers shall be maintained by the occupier for a period of five years from the date of last test and produce to the Inspector of Factories on demand.

(3) If at any time the **Certifying Surgeon** is of the opinion that the worker is no longer fit to work in the said process on the ground that continuance daring would involve danger to the health of the worker he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person declared unfit in such circumstances shall be provided with alternate placement facility unless he is fully incapacitated in the opinion of the Certifying Surgeon in which case the person affected shall be suitably rehabilitated.

7. Personal Protective equipment.- (1) The occupier shall ensure that the workers who are likely to be exposed to high level of vibration are provided with appropriate Personal Protective Equipment (PPE) and protective clothing confirming to national or international standards. Such Personal Protective Equipment should include hand gloves arid safety shoes. The protective clothing shall be able to protect the workers from cold and dump.

(2) The Occupier shall ensure that workers are given periodical training in the use care and maintenance of the Personal Protective Equipment.

8. Administrative Control Measures.- (1) The occupier shall ensure that as far as reasonably practicable as all necessary control measures are taken to ensure that the unwanted vibrations do not affect the health of the workers employed in the process to which this part of schedule apply.

(2) The occupier shall provide all workers with information, instruction and training to be adopted to limit the exposure limit values and action values as set out in paragraph -3.

(3) Without prejudice to the generality of sub-paragraph 2 above, the information, instruction and training provided under that the said sub - paragraph shall include.-

(a) the exposure limit values and action values set out in paragraph 3;

(b) safe working practices to minimise exposure to vibration;

(c) suitable and sufficient information and training for employees, such that work equipment may be used correctly and safety, in order to minimise their exposure to vibration;

(d) limitation of the duration and magnitude of exposure to vibration;

(e) appropriate work schedules with adequate rest periods; and

(f) The information, instruction and training required by sub - paragraph (2) shall be updated to take account of significant changes in the type of work carried out or the working methods used by the employer.

(4) The Occupier shall display pictorial cautionary notices/warning signs at conspicuous places where there are possibilities of workers being exposed to undesired high vibrations.

9. **Prohibition in employment of women, young persons and persons with disabilities.-** No women or young person or persons with disabilities shall be employed in the process covered by this part of the schedule.

10. **Exemptions.-** If, in respect of any factory, the Chief Inspector is satisfied that owing to any exceptional circumstances, or infrequency of the processes or for any other reason, application of all or any of the provisions of this schedule is not necessary for protection of the persons employed in such factory, he may, by an order in writing exempt such factory from all or any of the provisions on such conditions and for such period as he may specify in the said matter.".

Md. NASIMUDDIN,
Additional Chief Secretary to Government.

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