



BARBADOS

S.I. 2022 No. 57

Safety and Health at Work Act

CAP. 356

SAFETY AND HEALTH AT WORK (NOISE) REGULATIONS, 2022

The Minister, in exercise of the powers conferred on him by section 105(1) of the *Safety and Health at Work Act*, makes the following Regulations:

1. These Regulations may be cited as the *Safety and Health at Work (Noise) Regulations, 2022*.

2. In these Regulations,

“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, more closely reflects the response of the human ear to the sound measured;

“dB” means decibel;

“dBA” means the sound level in decibels as measured on a sound level meter operating on the A-weighting network;

“daily personal noise exposure” means

(a) the level of daily personal noise exposure as ascertained in accordance with Part I of the *First Schedule* taking into consideration the level of noise and duration of exposure covering all noise; or

(b) the combination of two or more periods of noise exposure at different levels;

“frequency” means the rate of pressure variation expressed in cycles per second or hertz;

“health surveillance” means the assessment of the state of health of an employee as related to exposure to noise;

“hearing conservation programme” or “programme” means a program which involves the evaluation of noise in a workplace which is used to implement measures to reduce noise levels as low as reasonably practicable, prevent occupational hearing loss and provide employees with the information, training, equipment and tools necessary to conserve hearing;

“hearing protection zone ” means any area within a workplace where the use of personal hearing protection is mandatory due to exposure to noise levels at or exceeding the upper exposure action value;

“impulse or impact noise” means a sharp rise and rapid decay in sound levels and is less than one second in duration and is repeated after a delay of more than one second;

“lower exposure action value” means the lower of the two levels of daily or weekly personal noise exposure or of peak sound pressure set out in the *Second Schedule* which, if reached or exceeded, requires specified action to be taken to reduce the risk;

“noise” means any audible sound;

“ototoxicity” means the pharmacological adverse reaction affecting the inner ear or auditory nerve characterised by cochlear or vestibular dysfunction;

“ototoxic substance” means a substance which can harm the inner ear or auditory nerve resulting in cochlear or vestibular dysfunction;

“peak sound pressure” means the maximum sound pressure to which an employee is exposed, ascertained in accordance with Part II of the *First Schedule*;

“qualified person” includes

- (a) an audiologist or speech therapist registered under section 6 of the *Paramedical Professions Act, Cap. 372C*;

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- (b) a medical practitioner registered under section 9 of the *Medical Profession Act, 2011* (Act 2011-1) who is trained to conduct auditory examinations;
 - (c) a nurse registered under the *Nurses Act, Cap. 372* who is trained to conduct auditory examinations; or
 - (d) a person authorised by the Chief Labour Officer;

“upper exposure action value” means the higher of the 2 levels of daily or weekly personal noise exposure or of peak sound pressure set out in regulation 4 which, if reached or exceeded, requires specified action to be taken to reduce the risk;

“weekly personal noise exposure” means the level of weekly personal noise exposure as ascertained in accordance with Part II of the *First Schedule* taking into consideration the level of the noise and the duration of exposure covering all noise.

3.(1) Where an employer carries out work which is liable to expose an employee to noise

- (a) at or above a lower exposure action value;
- (b) at or above an upper exposure action value; or
- (c) at or above an exposure limit value

set out in the *Second Schedule*, the employer shall assess the risk of noise, from any work process, activity or equipment, to the health and safety of the employee.

(2) An assessment of the risk of noise referred to in paragraph (1) shall be conducted by

- (a) observing the specific working practices of the employee;

- (b) referring to relevant information on the probable levels of noise corresponding to the work process, activity or equipment used in the particular working conditions of the employee;
- (c) measuring the level of noise to which an employee is likely to be exposed; and
- (d) examining
 - (i) the level, type and duration of an employee's exposure to noise, including any exposure to peak sound pressure;
 - (ii) the effects of exposure to noise on an employee or a group of employees whose health is at particular risk from such exposure;
 - (iii) the effects on the health and safety of employees resulting from the interaction between noise and the use of ototoxic substances at work, or between noise and vibration;
 - (iv) the indirect effects on the health and safety of employees resulting from the interaction between noise and audible warning signals or other sounds that need to be audible in order to reduce the risk at work;
 - (v) the information provided by the manufacturers of work equipment;
 - (vi) the availability of alternative equipment designed to reduce the emission of noise;
 - (vii) any extension of exposure to noise at the workplace beyond normal working hours, including exposure in rest facilities supervised by the employer;
 - (viii) appropriate information obtained following health surveillance, including, where possible, published information; and
 - (ix) the availability of personal hearing protectors with adequate attenuation characteristics.

(3) An assessment of the risk of noise conducted in accordance with paragraph (2) shall be reviewed regularly.

(4) Where the risk assessment referred to in paragraphs (2) and (3) has been reviewed and

- (a) there is reason to suspect that the risk assessment is no longer valid; or
- (b) there has been a significant change in the work to which the assessment relates

the risk assessment shall be amended to reflect the changes.

(5) An employer shall record

- (a) the significant findings of the risk assessment as soon as is practicable after the risk assessment is made or changed; and
- (b) the measures which have been taken and will be taken to meet the requirements of regulations 4 and 5.

4. Where a risk assessment shows that an employee is exposed to a noise level that exceeds the upper exposure action value set out in the *Second Schedule*, the employer shall reduce the noise level to below the upper exposure action value by implementing engineering controls or administrative measures which include,

- (a) utilizing alternative work methods;
- (b) providing work equipment that emits the least possible noise, having regard to the nature of the work;
- (c) adjusting the design and layout of the workplace and position of work stations;
- (d) providing information and training for employees relating to the correct use of work equipment;
- (e) implementing maintenance programmes for work equipment, the workplace and workplace systems;

- (f) limiting an employee's duration and intensity of exposure to noise; and
- (g) organizing work schedules and rest periods.

5.(1) Notwithstanding regulation 4, where the implementation of engineering controls or administrative measures does not reduce the noise level to below the upper exposure action value, an employer shall provide personal hearing protectors for all employees who are exposed to the noise level above the upper exposure action value which is appropriate for the activity; and all employees shall wear the personal hearing protectors provided by the employer.

(2) Where the wearing of personal hearing protectors fails to reduce the noise level in the workplace to below the daily or weekly exposure limit set out in the *Second Schedule*, the employer shall reduce the period during which the employee is exposed to noise, so that the noise exposure period and noise level are in accordance with the *Third Schedule*.

(3) Where the noise level exceeds the lower exposure action value but does not exceed the upper exposure action value set out in the *Second Schedule*, the employer shall provide employees who are exposed, with

- (a) information, instruction and training on the effects of noise; and
- (b) personal hearing protection which is appropriate for the work activity.

(4) Where there is an area in the workplace that an employee is likely to be exposed to noise at or above an upper exposure action value, the employer shall

- (a) designate that area as a hearing protection zone;
- (b) demarcate that area, identify it by means of a sign and mandate that hearing protection is to be worn; and
- (c) restrict access to persons who are authorised to enter the hearing protection zone

and shall ensure so far as is reasonably practicable that no employee enters that area unless that employee is wearing personal hearing protectors.

6.(1) Where an employer carries out work which is liable to expose an employee to noise which exceeds the upper exposure action value set out in the *Second Schedule*, the employer shall establish a programme to be known as the hearing conservation programme to monitor the hearing of employees who are exposed.

(2) Under the programme an employer shall arrange for the conduct of auditory surveys on his employees

- (a) prior to their employment; and
- (b) at regular intervals during their employment.

(3) Where an auditory survey reveals that an employee has suffered damage to his hearing as a result of exposure to noise which exceeds the upper exposure action value, the employer shall implement measures to reduce the level of noise.

(4) All employees who work in an area where the noise level exceeds the upper action value level set out in the *Second Schedule* shall be examined 3 months after the date of employment and re-examined at least once in every 12 month period by

- (a) an audiologist or speech therapist registered under section 6 of the *Paramedical Professions Act, Cap. 372C*;
- (b) a medical practitioner registered under section 9 of the *Medical Profession Act, 2011 (Act 2011-1)* and who is trained to conduct auditory examinations;
- (c) a nurse registered under the *Nurses Act, Cap. 372* and who is trained to conduct auditory examinations; or
- (d) a person authorised by the Chief Labour Officer,

and a record of the examination shall be submitted to the employer.

(5) The auditory examination referred to paragraph (4) shall include the determination of auditory thresholds for pure tones of 500, 1000, 2000, 3000, 4000, 6000 and 8000 cycles per second.

7.(1) An employer shall keep the records of all risk assessments, auditory surveys, examinations and any other assessment relating to the noise level to which employees are exposed in the workplace for a period of 20 years and shall make those records available for inspection by the Chief Labour Officer.

(2) An employer shall provide copies of any records of assessments relating to the noise level in the workplace to the Chief Labour Officer where the Chief Labour Officer so requests.

(3) An employer shall allow an employee or a person authorised by the employee to inspect the individual records of risk assessments, auditory surveys and examinations or any other assessment relating to the level of noise to which that employee is exposed to in the workplace.

8.(1) The Chief Labour Officer may, by certificate in writing, exempt a workplace or category of workplace from any provision of these Regulations where by reason of the nature of the work undertaken at the workplace, plant or equipment, the provision cannot be implemented or is not necessary for the protection of the employees who work there.

(2) The Chief Labour Officer shall establish and maintain a register of exemptions and shall enter into the register of such particulars relating to a workplace or category of workplace where a certificate of exemption has been

(a) granted; or

(b) revoked.

FIRST SCHEDULE

(Regulation 2)

Part I

Daily personal noise exposure levels

1. The daily personal noise exposure level, $L_{EP,d}$ is expressed in decibels and is ascertained using the formula:

$$L_{EP,d} = L_{Aeq,T_e} + 10 \log_{10} \left(\frac{T_e}{T_0} \right)$$

where -

T_e is the duration of the employee working day, in seconds;

T_0 is 28,800 seconds (8 hours); and

L_{Aeq,T_e} is the equivalent continuous A-weighted sound pressure level, in decibels, that represents the sound the employee is exposed to during the working day.

2. Where the work is such that the daily exposure consists of two or more periods with different sound levels, the daily personal noise exposure level ($L_{EP,d}$) for the combination of periods is ascertained using the formula:

$$L_{EP,d} = 10 \log_{10} \left[\frac{1}{T_0} \sum_{i=1}^{i=n} \left(T_i 10^{0.1(L_{Aeq,T})_i} \right) \right]$$

where -

n is the number of individual periods in the working day;

T_i is the duration of period i ;

First Schedule - (Cont'd)

$(L_{Aeq,T})_i$ is the equivalent continuous A-weighted sound pressure level that represents the sound that an employee is exposed to during period i ; and

$\sum_{i=1}^{i=n} T_i$ is equal to T_e , the duration of the person's working day, in seconds.

Part II

Weekly personal noise exposure levels

1. The weekly personal noise exposure, $L_{EP,w}$, for a nominal week of five working days, is expressed in decibels and is ascertained using the formula:

$$L_{EP,w} = 10 \log_{10} \left[\frac{1}{5} \sum_{i=1}^{i=m} 10^{0.1(L_{EP,d})_i} \right]$$

where -

m is the number of working days on which an employee is exposed to noise during a week; and $(L_{EP,d})_i$ is the $L_{EP,d}$ for working day i .

Peak sound pressure level

2. Peak sound pressure level (L_{Cpeak}), is expressed in decibels and is ascertained using the formula:

$$L_{Cpeak} = 20 \log_{10} \left[\frac{P_{Cpeak}}{P_0} \right]$$

where -

(a) P_{Cpeak} is the maximum value of the C-weighted sound pressure, in Pascals (Pa), to which an employee is exposed during the working day; and

(b) $P_0 = 20 \mu\text{Pa}$.

SECOND SCHEDULE

*(Regulations 2, 3,4,5 and 6)***Exposure limit values and action values**

- (a) the lower exposure action values are
 - (i) a daily or weekly personal noise exposure of 80 dB (A-weighted); and
 - (ii) a peak sound level pressure of 135 dB (C-weighted);
- (b) the upper exposure action values are
 - (i) a daily or weekly personal noise exposure of 85 dB (A-weighted); and
 - (ii) a peak sound pressure of 137 dB (C-weighted); and
- (c) the exposure limit value
 - (i) a daily or weekly personal noise exposure of 87 dB (A-weighted); and
 - (ii) a peak sound pressure of 140 dB (C-weighted).

THIRD SCHEDULE

*(Regulation 5)***Permissible Noise Exposures**

Maximum duration per day	Sound level (dBA)
8 hours	85
6 hours 21 minutes	86
5 hours 2 minutes	87
4 hours	88
3 hours 11 minutes	89
2 hours 31 minutes	90
2 hours	91
1 hour 35 minutes	92
1 hour 16 minutes	93
1 hour	94
48 minutes	95
38 minutes	96
30 minutes	97
24 minutes	98
19 minutes	99
15 minutes	100
12 minutes	101
9 minutes	102
7.5 minutes	103
6 minutes	104
5 minutes	105
4 minutes	106
3 minutes	107
2.5 minutes	108
2 minutes	109
1.5 minutes	110
1 minute	111

Third Schedule - (Concl'd)

Maximum duration per day	Sound level (dBA)
56 seconds	112
45 seconds	113
35 seconds	114
30 seconds	115 or more

Made by the Minister this 5th day of July, 2022.

C. JORDAN

Minister responsible for Labour