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WORKPLACE SAFETY AND HEALTH ACT
(CHAPTER 354A)

WORKPLACE SAFETY AND HEALTH (NOISE)
REGULATIONS 2011

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In exercise of the powers conferred by section 65 of the Workplace Safety and Health Act, the Minister for Manpower hereby makes the following Regulations:

PART I
PRELIMINARY

Citation and commencement

1. These Regulations may be cited as the Workplace Safety and Health (Noise) Regulations 2011 and shall come into operation on 1st September 2011.

Definitions

2.—(1) In these Regulations, unless the context otherwise requires —

“competent person”, in relation to any work to be carried out, means a person who has sufficient experience and training to perform the work;

“dB(A)” means decibels of A-weighted sound pressure level measured by an instrument with an electrical network having the characteristics specified by the International Electrotechnical Commission;

“dB(C)” means decibels of C-weighted sound pressure level measured by an instrument with an electrical network having the characteristics specified by the International Electrotechnical Commission;

“equivalent sound pressure level”, in relation to a fluctuating sound pressure level, means a constant sound pressure level measured over a duration of time which has the same cumulative acoustic energy as the fluctuating sound pressure level measured over the same duration;

“peak sound pressure level” means the absolute maximum or highest C-weighted sound pressure level of any continuous, intermittent, instantaneous or impact noise;

“relevant person” means a person at work in a workplace who is exposed or is likely to be exposed to excessive noise;

“responsible person”, in relation to a relevant person, means —

- (a) his employer; or
- (b) the principal under whose direction the relevant person carries out the work in the workplace.

(2) For the purposes of these Regulations —

- (a) a person shall be deemed to be exposed to excessive noise, if the noise that he would be exposed to, when not wearing any hearing protector, exceeds —
 - (i) the permissible exposure limit for noise specified in the Schedule;
 - (ii) an equivalent sound pressure level of 85 dB(A) over an 8-hour work day, in any case where the noise is at a fluctuating sound pressure level; or
 - (iii) a peak sound pressure level exceeding 140 dB(C); and
- (b) sound pressure level shall be calculated according to the following formula:

$$\text{SPL} = 10 \log \left(\frac{P}{P_0} \right)^2$$

where SPL is the sound pressure level;

log is the common logarithm;

P is the sound pressure; and

P₀ is the standard reference pressure of 20 microPascals

Application

3. These Regulations shall apply to every workplace where a person is exposed or is likely to be exposed to excessive noise caused by —

- (a) any machinery or equipment used in the workplace; or

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- (b) any process, operation or work carried out in the workplace.

PART II
NOISE CONTROL

Measures to reduce or control noise

4.—(1) It shall be the duty of the occupier of a workplace to take, so far as is reasonably practicable, such measures to reduce or control the noise from any machinery or equipment used, so that no person at work in the workplace is exposed or is likely to be exposed to excessive noise.

(2) It shall be the duty of the responsible person to take, so far as is reasonably practicable, such measures to reduce or control the noise from any process, operation or work carried on by him in a workplace, so that no person at work in the workplace is exposed or is likely to be exposed to excessive noise.

(3) The measures referred to in paragraphs (1) and (2) may include one or more of the following:

- (a) replacing noisy machinery, equipment, processes, operation or work with less noisy machinery, equipment, processes, operation or work;
- (b) locating noise sources away from hard walls or corners;
- (c) isolating noise sources, so as to minimise the number of persons at work in the workplace who are exposed to the noise;
- (d) constructing suitable acoustic enclosures to contain noise emitted by machinery, equipment, processes, operation or work;
- (e) erecting an effective noise barrier larger in size than the noise source to provide acoustic shielding;
- (f) operating pneumatic machinery, equipment or tools at optimum air pressure to minimise noise emission and

installing suitable pneumatic silencers at pneumatic line outlets;

- (g) installing mufflers at intake and exhaust openings that emit noise;
- (h) mounting vibrating machinery on vibration isolators or separate foundations;
- (i) isolating persons at work in the workplace in an acoustically shielded room or enclosure, where reduction of noise at the noise source is not practicable;
- (j) lining hard surfaces with acoustically absorbent materials to reduce noise reverberation;
- (k) isolating or reducing the size and vibration of vibrating surfaces or applying damping materials to vibrating surfaces;
- (l) reducing the height from which objects are allowed to fall or applying a resilient material at the point of impact or at the point of interaction of moving objects;
- (m) maintaining machinery and equipment at regular intervals to reduce noise emission.

(4) Where it is not practicable to reduce the noise, it shall be the duty of the occupier of a workplace or the responsible person to limit the duration of time persons at work in the workplace are exposed to the noise so that such persons are not exposed to excessive noise.

(5) Any person who contravenes paragraph (1), (2) or (4) shall be guilty of an offence and shall be liable —

- (a) on conviction, to a fine not exceeding \$10,000; and
- (b) in the case of a second or subsequent conviction, to a fine not exceeding \$20,000 or to imprisonment for a term not exceeding 6 months or to both.

Appointment of competent person to advise on noise control

5.—(1) Where there are 50 or more relevant persons employed or working in a workplace, it shall be the duty of the occupier of the

workplace to appoint a competent person to advise on all proper noise control measures.

(2) It shall be the duty of the competent person to take, so far as is reasonably practicable, such measures as are necessary to ensure that his advice on the noise control measures is adequate, suitable and effective.

(3) It shall be the duty of the occupier of a workplace to, so far as is reasonably practicable, implement such measures as advised by the competent person.

(4) Any person who contravenes paragraph (1) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$5,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$10,000.

(5) Any competent person who contravenes paragraph (2) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$5,000.

(6) Any person who contravenes paragraph (3) shall be guilty of an offence and shall be liable —

(a) on conviction, to a fine not exceeding \$10,000; and

(b) in the case of a second or subsequent conviction, to a fine not exceeding \$20,000 or to imprisonment for a term not exceeding 6 months or to both.

Duty of manufacturers and suppliers of noisy machinery or equipment

6.—(1) It shall be the duty of any person who manufactures or supplies, for use in any workplace, any machinery or equipment which is likely to expose any person to excessive noise to —

(a) furnish, to the person to whom the machinery or equipment is supplied, such information as the Commissioner may require concerning the sound level which is likely to be generated by the machinery or equipment; and

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- (b) indicate, by means of a sign or label on the machinery or equipment —
- (i) the need to wear hearing protectors when exposed to the noise from the machinery or equipment; and
 - (ii) such other information as the Commissioner may require.

(2) Any person who contravenes paragraph (1) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$5,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$10,000.

PART III

NOISE MONITORING, HEARING PROTECTORS AND TRAINING

Noise monitoring

7.—(1) Where there are 10 or more relevant persons employed or working in a workplace, it shall be the duty of the occupier of the workplace to cause noise monitoring to be carried out at least once every 3 years, or earlier if any change in machinery, equipment, process, operation, work, control or other condition is likely to cause any such person to be exposed to excessive noise.

(2) Notwithstanding paragraph (1), the Commissioner may require the occupier of the workplace to cause noise monitoring to be carried out at such other intervals as the Commissioner may determine.

(3) For the purposes of paragraphs (1) and (2), it shall be the duty of the occupier of the workplace to —

- (a) appoint a competent person to carry out noise monitoring;
- (b) not later than 14 days after receiving the report referred to in paragraph (4)(c) from the competent person, communicate the contents of the report to all relevant persons;

(c) not later than 30 days after the carrying out of the noise monitoring, submit a copy of the report referred to in paragraph (4)(c) to the Commissioner; and

(d) keep the report available for at least 10 years.

(4) It shall be the duty of the competent person referred to in paragraph (3)(a) to —

(a) carry out noise monitoring using —

(i) recognised methods;

(ii) accepted standard procedures; and

(iii) suitable equipment which is properly calibrated to ensure accuracy;

(b) properly interpret the results of noise monitoring;

(c) prepare a report of the results of noise monitoring; and

(d) submit the report to the occupier of the workplace not later than 14 days after the carrying out of noise monitoring.

(5) Any person who contravenes paragraph (1) or (3) or fails to comply with the requirement of the Commissioner referred to in paragraph (2) shall be guilty of an offence and shall be liable on conviction to fine not exceeding \$5,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$10,000.

(6) Any competent person who contravenes paragraph (4) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$5,000.

Hearing protectors

8.—(1) It shall be the duty of the responsible person to provide suitable hearing protectors to every relevant person.

(2) It shall be the duty of the responsible person to ensure that any hearing protectors provided under paragraph (1) shall —

(a) correctly fit the user;

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- (b) attenuate the exposure of the user to sound pressure levels below 85 dB(A);
- (c) be compatible with the job requirements of the user; and
- (d) not prejudice the health and safety of the user.
- (3) It shall be the duty of the responsible person to establish and implement procedures to ensure that —
- (a) hearing protectors are properly issued and maintained; and
- (b) every relevant person —
- (i) uses hearing protectors; and
- (ii) is instructed in the proper use of the hearing protectors.
- (4) It shall be the duty of the occupier of a workplace to ensure that warning signs that comply with paragraph (5) are posted at all entrances to or at the periphery of all areas of the workplace in which any person is exposed or is likely to be exposed to excessive noise.
- (5) Every warning sign referred to in paragraph (4) shall clearly indicate that hearing protectors must be worn in the areas referred to in paragraph (4).
- (6) Any person who contravenes paragraph (1), (2), (3) or (4) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$5,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$10,000.

Training programme

- 9.—(1) It shall be the duty of the responsible person to institute a training programme for every relevant person.
- (2) It shall be the duty of the responsible person to ensure that the training programme includes instruction in the following:
- (a) the relevant provisions of the Act and these Regulations;
- (b) the effects of noise on hearing;
- (c) the purpose of hearing protectors;

- (d) the advantages, disadvantages and attenuation of various types of hearing protectors;
- (e) the selection, fitting, use and care of hearing protectors; and
- (f) the purpose of hearing tests and the appropriate procedures and requirements of such tests.
- (3) It shall be the duty of the responsible person to conduct the training programme for every relevant person —
- (a) within 3 months of that person first commencing work in the workplace; and
- (b) at least once every 12 months.
- (4) Any person who contravenes paragraph (1), (2) or (3) shall be liable on conviction to a fine not exceeding \$2,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$5,000.

PART IV MISCELLANEOUS

Revocation

10. The Factories (Noise) Regulations (Cap. 104, Rg 14) are revoked.

THE SCHEDULE

Regulation 2(2)

PERMISSIBLE EXPOSURE LIMITS FOR NOISE

<i>Sound pressure level, dB(A)</i>		<i>Maximum duration per day</i>
1.	82	16 hours
2.	83	12 hours 42 minutes
3.	84	10 hours 5 minutes
4.	85	8 hours
5.	86	6 hours 21 minutes
6.	87	5 hours 2 minutes

THE SCHEDULE — *continued*

<i>Sound pressure level, dB(A)</i>		<i>Maximum duration per day</i>
7.	88	4 hours
8.	89	3 hours 11 minutes
9.	90	2 hours 31 minutes
10.	91	2 hours
11.	92	1 hour 35 minutes
12.	93	1 hour 16 minutes
13.	94	1 hour
14.	95	48 minutes
15.	96	38 minutes
16.	97	30 minutes
17.	98	24 minutes
18.	99	19 minutes
19.	100	15 minutes
20.	101	12 minutes
21.	102	9 minutes
22.	103	7.5 minutes
23.	104	6 minutes
24.	105	5 minutes
25.	106	4 minutes
26.	107	3 minutes
27.	108	2.5 minutes
28.	109	2 minutes
29.	110	1.5 minutes
30.	111	1 minute
31.	112	56 seconds
32.	113	45 seconds
33.	114	35 seconds

THE SCHEDULE — *continued*

<i>Sound pressure level, dB(A)</i>		<i>Maximum duration per day</i>
34.	115	28 seconds
35.	116	22 seconds
36.	117	18 seconds
37.	118	14 seconds
38.	119	11 seconds
39.	120	9 seconds
40.	121	7 seconds
41.	122	6 seconds
42.	123	5 seconds
43.	124	4 seconds
44.	125	3 seconds
45.	126 to 127	2 seconds
46.	128 to 129	1 second
47.	130 to 140	<1 second.

Notes:

1. The duration of exposure is to be obtained by adding up the total duration of exposure per work day, whether there is one continuous exposure or a number of separate exposures.
2. Every continuous, impulsive or impact noise of sound pressure levels from 80 dB(A) to 140 dB(A) must be included in the computation of the noise exposure of a person.
3. The permissible exposure limit is exceeded if a person is exposed to noise at a sound pressure level listed in the Table above in excess of the corresponding duration.

Made this 20th day of July 2011.

LOH KHUM YEAN
*Permanent Secretary,
Ministry of Manpower,
Singapore.*

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(To be presented to Parliament under section 65(8) of the Workplace Safety and Health Act).