SAFE WORKING GUIDELINES
NOISE

1. Introduction

The objective of this procedure is to prevent the occurrence of injury and reduce the severity of injuries resulting from noisy tasks performed by employees and subcontractors of Proline Building Commercial Pty Ltd.

2. Purpose

The purpose of this document is to provide suitable information for the identification, assessment and control of hazards associated with Noise.

3. Definitions

'Audiometric Testing'	means the measurement of the hearing threshold levels of a person by means of monaural pure tone air conduction threshold tests
'Noise'	means any unwanted or damaging sound;
'Plant'	means any machinery, equipment, appliance or tool

4. Roles & Responsibilities

Project Managers/ Supervisors and Site Foreman are responsible for the following:

- Identification, assessment, control and evaluation of noise hazards;
- Laying out the site to separate noisy activities from quieter ones eg concentrate compressors pumps and generators in screened-off areas or away from the work to be carried out; workshops, stores etc away from noisy activities;
- Scheduling noisy activities to take place when the minimum number of other nearby workers are present (but noise out of hours needs to be carefully planned to avoid neighborhood annoyance);
- Ensuring that workers are well trained, instructed and supervised in noise matters and responsibilities including the correct use and maintenance of personal hearing protectors;
- Rostering workers to minimise exposure to noise;
- Ensure all employees, subcontractors, clients and other relevant stakeholders wear prescribed hearing protection;
- Ensure that employees working in designated hazardous areas for extended periods of time undergo Audiometric Testing;
- Checking if equipment brought onto the site complies with specifications. This could be carried out by obtaining information available from suppliers or if need be by noise assessments;
- Ensure that all plant and equipment is properly maintained, eg noise control measures like silencers and enclosures are intact.

Employees / subcontractors are responsible for the following:

- Co-operate with Project Managers/Supervisors and Site Foreman in implementing the noise management controls;
- Ensure plant and equipment that is properly maintained is only used.
- Ensure Hearing Protection is worn as required. *(It is a statutory requirement that all employees must wear hearing protection in areas where noise level is or exceeds 85dB (A). Furthermore, noise levels must not exceed a peak noise level of 140db (C))*

How much is too much Noise?

(Obtained from the Managing noise and preventing hearing loss – Code of Practice 2011)

Whether the exposure standard of 85 dB(A) averaged over eight hours is exceeded depends on the level of noise involved and how long workers are exposed to it.

Peak noise levels greater than 140 dB(C) usually occur with impact or explosive noise such as sledge-hammering or a gun shot. Any exposure above this peak can create almost instant damage to hearing.

Decibels are not like normal numbers. They can't be added or subtracted in the normal way. The decibel scale is logarithmic. On this scale, an increase of 3 dB therefore represents a doubling or twice as much sound energy. This means that the length of time a worker could be exposed to the noise is reduced by half for every 3 dB increase in noise level if the same noise energy is to be received.

Table 1 below demonstrates the length of time a person without hearing protectors can be exposed before the standard is exceeded.

Table 1: Equivalent Noise Exposures $L_{Aeq,8h}$ = 85 dB(A)	
Noise Level dB(A)	**Exposure Time**
80	16 hours[1]
82	12hours[1]
85	8 hours
88	4 hours
91	2 hours
94	1 hour
97	30 minutes
100	15 minutes
103	7.5 minutes
106	3.8 minutes
109	1.9 minutes
112	57 seconds
115	28.8 seconds
118	14.4 seconds
121	7.2 seconds
124	3.6 seconds
127	1.8 seconds
130	0.9 seconds

Essentially, a worker who is exposed to 85 dB(A) for 8 hours receives the same noise energy as someone exposed to 88 dB(A) for 4 hours, with the balance of the day in a very quiet environment. In both cases the exposure standard is not being exceeded. However, being exposed to 88 dB(A) for more than 4 hours would mean that the standard is exceeded. Similarly, if a worker is using a machine that generates 121 dB(A) then the exposure standard would be exceeded after only 7.2 seconds.

There is a big range in different people's susceptibility to hearing loss from noise. Research shows that 8-hour average daily noise exposure levels below 75 dB(A) or instantaneous peak noise levels below 130 dB(C) are unlikely to cause hearing loss. With progressively increasing levels, the risk becomes greater.

The WHS Regulations set the exposure standard for noise at an $L_{Aeq,8h}$ of 85 dB(A) and a peak noise level at 140 dB(C), which protects most but not all people. Therefore, workplace noise should be kept lower than the exposure standard for noise if reasonably practicable.

5. Procedure

Employees and subcontractors are responsible for developing an understanding of an becoming competent in the implementation of risk management principles and practices on site/s.

This is a four phase process:-
1. Risk Identification
2. Risk Assessment
3. Risk Control
4. Risk Evaluation

5.1 Risk Identification

Identification of risks associated with Noise should be undertaken by the following means:

- Consultation with employees / subcontractors
- Observation of work practices
- Inspections of the task and associated work areas
- Examine workplace injury records to assess what hearing loss injuries have occurred to what tasks being carried out.

Refer to the below table of Common Noise Sources, (Obtained from the Managing noise and preventing hearing loss – Code of Practice 2011)

Table 2: Common noise sources and their typical sound levels	
Typical sound level in dB	**Sound source**
140	Jet engine at 30m
130	Rivet hammer (pain can be felt at this threshold)
120	Rock drill
110	Chain saw
100	Sheet-metal workshop
90	Lawn-mower
85	Front-end loader
80	Kerbside Heavy traffic
	Lathe
70	Loud conversation
60	Normal conversation
40	Quiet radio music
30	Whispering
0	Hearing threshold

5.2 Risk Assessment

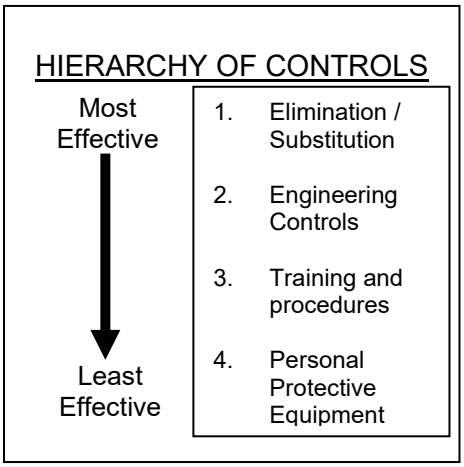
Identified hazards should then be prioritized according to the severity of injury, frequency of task and probability whilst performing the task. When assessing the risk, consideration will be given to:

- Occupation or job/task of the person exposed
- Work environment
- Duration and frequency
- Previously known hearing impairment.

5.3 Risk Control

It is the responsibility of all employees and subcontractors involved in the Noise hazard management process to ensure that they co-operate with control measures that are put in place by Proline. Risk Control is the means for minimizing or eliminates the identified risk and is carried out using the following heiarchary of control:

- *Eliminate the risk by ceasing the hazardous component or activity*
- *Substitute a less harmful alternative hazard substance or process*
- *Isolate the hazard at source using engineering means*
- *Introduce administrative controls to minimize exposure*
- *Use of Personal Protective Equipment*



Control options should include the following:

- Remove the noise hazard or it's source totally from the workplace
- Modify the plant or machinery – Engineering Controls as noted in further detail below – ie silencers, noise reducing emissions
- Modify the workplace layout – restrict access – refer to figure 1. Below from the Noise and Preventing Hearing Loss Code of Practice
- Use of devices to protect the hearing - PPE
- Use particular training or instruction

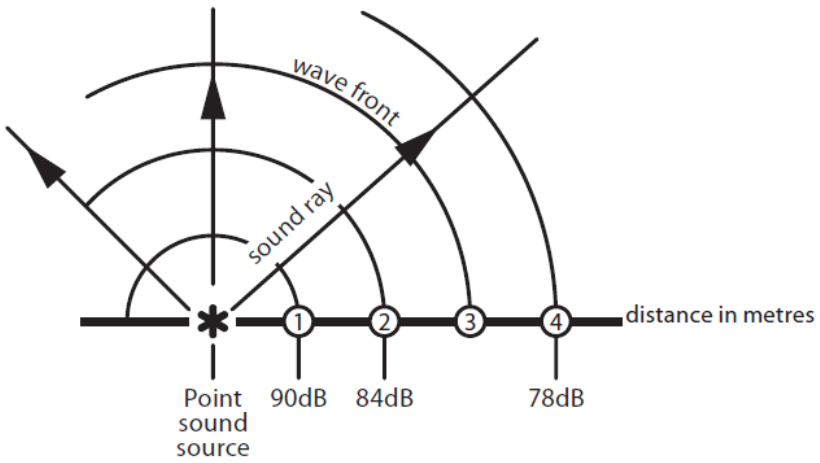
Examples of engineering control measures include:

- eliminating impacts between hard objects or surfaces
- minimising the drop height of objects or the angle that they fall onto hard surfaces
- using absorbent lining on surfaces to cushion the fall or impact of objects
- fitting exhaust mufflers on internal combustion engines
- fitting silencers to compressed air exhausts and blowing nozzles
- isolating a vibrating noise source to separate it from the surface on which it is mounted using rubber mounts and flexible connections
- ensuring gears mesh together better
- fixing damping materials (such as rubber) or stiffening to panels to reduce vibration
- fitting sound-absorbing materials to hard reflective surfaces
- turning down volume controls
- changing fan speeds or the speeds of particular components
- changing the material the equipment or its parts are made of (change metal components to plastic components).

Examples of isolating the source of noise from workers include:

- building enclosures or sound proof covers around noise sources
- using barriers or screens to block the direct path of sound
- locating noise sources further away from workers (see Figure 1)
- using remote controls to operate noisy plant from a distance.

FIGURE 1: Sound spreading in an open space away from reflecting surfaces and measured at a certain distance from the source is reduced by about 6 dB for each doubling of that distance. Sound is reduced less when spreading inside an enclosed space.



If a small sound source produces a sound level of 90 dB(A) at a distance of 1 metre, the sound level at 2 metres distance is 84 dB(A), and at 4 metres is 78 dB(A), etc.

Administrative noise control measures reduce the amount of noise to which a person is exposed by reducing the time they are exposed to it. Examples include:

- organising schedules so that noisy work is done when only a few workers are present
- notifying workers and others in advance of noisy work so they can limit their exposure to it
- keeping workers out of noisy areas if their work does not require them to be there
- sign-posting noisy areas and restricting access
- providing quiet areas for rest breaks for workers exposed to noisy work
- limiting the time workers spend in noisy areas by moving them to quiet work before their daily noise exposure levels exceed the exposure standard.

If you rely on administrative controls, you should conduct regular checks to ensure that they are being complied with.

Types of Hearing PPE:

5.4 Risk Evaluation

It is important to evaluate the effectiveness of the control measures implemented, to ensure that they are effective and that they do not lead into the introduction of additional hazards within the work environment. An evaluation of control measures must be carried out by the Site Foreman during the tasks Safe Work Method Statement Reviews.

6. Training

The Systems Manager will train employees during WHS EMS QA Seminars to ensure that employees can identify risky activities and receive appropriate training.

Project Manager/Supervisors should ensure Site Foreman train employees / subcontractors in identifying, assessing and controlling noisy activities during Safe Work Method Statement training for any noise related type work activities. Site Foreman should ensure the person/s being trained understand the reason for performing the task with the least amount of risk, can recognise the risks and decide the most appropriate method to complete the task and can perform the task in the correct way.

7. Audiometric Testing

An audiometric testing will be carried out to any new employee likely to be regularly exposed to noise exposure levels in excess of the standard set out by the Work Health Regulation 2011 (ie 85db(A)). The audiometric testing scheme should include an initial test with periodic testing each 1-2 years to follow. The test results and their implications will be made available to the employee and steps taken to ensure personnel with work related hearing loss are able to work safely.

8. Review & Evaluation

In order to ensure this procedure remains effective, it will be reviewed by Senior Management on an annual basis or in the event of an injury or near miss resulting from any noisy activity, changes in legislation or if raised by an employees concern.

9. References / Legislation

- Work Health & Safety Act 2011
- Work Health & Safety Regulation 2017
- Managing Noise and Preventing Hearing Loss at Work Code of Practice
- Workcover COP Noise Management and Protection of Hearing at Work 2004

10. Version Control

Date	**Version**	**Owner**	**Comments**
12.03.09	1	Michelle Noy	For Issue
11.11.11	2	Michelle Murphy	Following External 3rd Party Audit
18.04.12	3	Michelle Murphy	Changes in legislation / Code of Practices
05.06.15	4	Michelle Murphy	Following Management Review
01.09.17	5	Michelle Murphy	General Review
01.06.18	6	Michelle Murphy	Changes in legislation
01.12.23	7	Michelle Murphy	General Review