



# Noise Management in the Construction Industry

*A Practical Approach*

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# Noise Management in the Construction Industry

## A Practical Approach

### INTRODUCTION

Construction workers are among the most affected by industrial deafness. The 1998 International Labour Office encyclopedia lists the construction industry as the fourth noisiest industry sector. The types of workers at risk include:

- Users of impact equipment and tools (eg piling hammers, concrete breakers, manual hammers).
- Users of explosives (eg blasting, cartridge tools).
- Users of pneumatically powered equipment.
- Operators of plant powered by internal combustion engines.
- Bystanders in the vicinity of the plant.
- Operators and bystanders in enclosed spaces where there are noisy activities or a concentration of plant.
- Service and equipment maintenance personnel.

It is very important for the construction industry to adopt a preventive management program aimed at the reduction of workers' noise exposures. The best ways to achieve this reduction are to employ quiet work practices (like quiet piling systems) and use quiet construction equipment (like silenced compressors). When quieter alternatives are not available, consideration should be given to a site layout to arrange noisy processes away from workers not involved in their operation. Portable barriers can be used around static equipment like generators and concrete pumps.



Fig 1. Quieter screw piling system with a noise level of 79 dB(A) at 2 m.

To achieve better results, noise control aspects should be included in all four stages of any construction project: client's specifications, tenderer's proposal, site planning and construction phase.

## Stage 1

### Client's specifications

A client should include noise control requirements for both occupational and environmental noise early in the planning stage for a new project. The desired noise control requirements may be included in a client specification list in the tender document. This can help to avoid unexpected and often very expensive noise control during the construction phase. It allows tenderers to plan how to overcome noise problems in advance.

The client's specifications may include the following categories:

- Specified noise exposure levels during the construction phase, as per legislative requirements or company policy.
- Use of quiet/ silenced equipment.
- Adoption of quiet alternative techniques.
- Use of noise control measures like silencers, barriers, enclosures.
- Erection of warning signs identifying noise hazard areas.
- Time restrictions.
- Provision of personal hearing protectors and training.



Fig 2. Example of silenced generator with noise level of 76 dB(A) at 1 m

## Stage 2

### Tenderer's proposal

Following the client's specifications, the tenderer's proposal should cover all the specified categories and formulate a noise control policy and a noise control plan to be included in the site specific safety management plan.

The noise control plan may be a set of actions required to achieve the noise control policy and to reduce noise exposure. It may also include information on how the company is planning to meet its obligations, like:

- List of equipment to be used – with noise levels at operator position and/or at 1m.
- Methods undertaken to lower noise exposure, eg maintenance, barriers, enclosures.
- Restricted hours, rotation of workers in noisy places, special time arrangements like noisy work done after hours.
- Identification of noisy equipment and processes by signs.
- Site induction for employees and contractors to include noise levels, noise controls, and correct use and maintenance of personal hearing protectors.
- Selection and provision of appropriate personal hearing protectors.
- Audiometric tests.



Fig 3. Acoustically treated concrete pump reducing noise levels from 96 dB(A) to 88 dB(A) at 1m.

## Stage 3

### Planning of site activities

The main contractor should plan to coordinate subcontractors so that the activities of one do not unnecessarily expose employees of another to noise hazards. It is good practice to nominate one person as the noise coordinator for all noisy activities. Site planning should include:

- Preparation of guidance to workers on noise hazards and measures to be taken to reduce noise exposure.
- Preparation of schedules of noisy plant and exposure estimates for each phase of work.
- 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 neighbourhood annoyance).
- Rostering workers to minimise exposure times.
- Ensuring that workers are well trained, instructed and supervised in noise matters and responsibilities including correct use and maintenance of personal hearing protectors.



Fig 4. Portable screens around a power pack reducing the noise levels from 98 dB(A) to 90 dB(A) at 1 m

## Stage 4

### Construction phase

Once the construction work is in progress, it is essential to monitor the implementation of the noise control plan. This could be carried out by the client or the main contractor and could include the following:

- Checking if equipment brought onto site complies with specifications. This could be done by obtaining information available from suppliers or by noise assessments.
- Reducing noise from identified noise sources by exchanging equipment and/or processes for a quieter alternative or by engineering control methods to quieten the existing one.
- Ensuring that all plant is properly maintained eg all noise control measures like silencers and enclosures are intact.
- Monitoring work schedules to check that noisy work is carried out as specified, away from other workers, outside hours, etc.
- Monitoring if noisy areas are identified and well marked so employees and contractors can avoid entering them unnecessarily.
- Monitoring whether training and hearing tests have been carried out and if personal hearing protectors are adequate and are being worn and maintained correctly.
- Ensuring that the cause of any hearing loss shown up by audiometry is investigated.
- Utilising safety toolbox meetings to provide feedback on effectiveness of noise control measures and personal hearing protectors to employees and employers.
- Posting on safety notice boards results of noise assessments conducted and additional noise information.

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