AS 2436—1981

Australian Standard®

GUIDE TO NOISE CONTROL ON CONSTRUCTION, MAINTENANCE AND DEMOLITION SITES

The following scientific, industrial and governmental organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Acoustical Society

Australian Compressed Air Institute

Australian Federation of Civil Engineering Contractors

Confederation of Australian Industry

CSIRO, Division of Building Research

Department of Environment, South Australia

Environment Protection Authority, Victoria

Institution of Engineers, Australia

Master Builders Federation of Australia

National Association of Australian State Road Authorities

Society of Automotive Engineers—Australasia

Sydney City Council

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PREFACE

This standard was prepared by the Association's Committee on Noise from Pneumatic Tools and Machines. It is concerned with noise from construction, maintenance and demolition sites as it affects persons working on these sites and also those living and working in the neighbourhood. This standard provides guidance in noise control on such sites and includes guidance in investigation and identification of noise sources, measurements of sound and guidance in assessment with a view to planning measures for noise control and monitoring of their effectiveness. This standard may be useful for training courses for engineers, builders, architects and other persons who are likely to be involved in construction, maintenance or demolition work.

Construction, maintenance and demolition works pose different problems of noise control compared with most other types of industrial activity, since—

(a) they are mainly carried on in the open;

(b) they are often of temporary duration although they may cause considerable disturbance while they last;

(c) the noise arises from many different activities and kinds of plant, and its intensity and character may vary greatly at different phases of the work; and

(d) the sites cannot be divorced by planning control, as factories can, from areas which are sensitive to noise.

Much of the noise from construction, maintenance and demolition sites is caused by machinery. In some cases the noise levels generated may be unacceptable and reductions are necessary for the benefit of both the industry and the public.

Noise from construction, maintenance and demolition work may cause impairment of hearing to persons working on site and may be a cause of annoyance to people living and working in nearby premises, and to people outdoors in the vicinity.

In this standard, measures are listed which can be adopted by those concerned in the planning and implementation of construction, maintenance and demolition works to ensure that good practice is employed. Any such measures should always have due regard to safety. Many responsible sections of industry already make use of the measures included in this standard for noise control in construction, maintenance and demolition sites.

Some information on responsible authorities, estimation of noise from sites, levels of neighbourhood noise, monitoring procedures, typical sound levels from plant, noise sources, remedies, screens and enclosures are given in appendices.

In the preparation of this standard, considerable assistance was derived from BS 5228, Code of Practice for Noise Control on Construction and Demolition Sites.

This standard makes reference to the following Australian and International publications:

AS 1055	Code of Practice for Noise Assessment in Residential Areas
AS 1259	Sound Level Meters Part 1—Type 1, General Purpose Part 2—Type 2, Precision
AS 1269	SAA Hearing Conservation Code
AS 1270	Hearing Protection Devices
AS 1633	Glossary of Acoustic Terms
AS 2012	Method for Measurement of Airborne Noise from Agricultural Tractors and Earthmoving Machinery
AS 2221	Methods for Measurements of Airborne Sound Emitted by Compressor Units Including Primemovers and by Pneumatic Tools and Machines Part 1—Engineering Method for Measurement of Airborne Sound Emitted by Compressor/ Primemover Units Intended for Outdoor Use Part 2—Engineering Method for Measurement of Airborne Sound Emitted by Pneumatic Tools and Machines
SAA MP44	Guide for the Use of Sound Measuring Equipment Part 1—Portable Sound Level Meters
ISO/R 1996	Acoustics—Assessment of Noise with Respect to Community Response

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Australian Standard
for
GUIDE TO NOISE CONTROL ON CONSTRUCTION, MAINTENANCE AND DEMOLITION SITES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard provides guidance in noise control in respect of engineering construction, maintenance and demolition works, including guidance in investigation and identification of noise sources, measurement of sound, and its assessment, with a view to the planning of measures for noise control.

1.2 APPLICATION. This standard applies to operations associated with construction, maintenance and demolition works and is intended to assist local authorities, developers, architects, engineers, planners, designers and contractors to control noise on and from construction, maintenance and demolition sites.

1.3 DEFINITIONS. For the purpose of this standard, the following definitions apply:

Site—the area under the control of the person, company or organization carrying out the works.

Neighbourhood—the area surrounding the site.

NOTE: For definitions of acoustic terms, see AS 1633.

1.4 STATUTORY REQUIREMENTS. In Australia, legislation for the control of noise on construction, maintenance and demolition sites is generally the responsibility of the relevant State government or local council. Each State or local authority may therefore have different statutory requirements. To assist interested parties in obtaining up-to-date information relating to the applicable requirements, a list of most of the responsible authorities who have or may have statutory powers for the control of noise associated with construction, maintenance or demolition sites is given in Appendix A.

It is recommended that, before any construction, maintenance or demolition work is carried out, and preferably during the planning of this work, the appropriate authorities be contacted to obtain information concerning the current statutory requirements. Failure to do so may result in costly alterations or delays, adverse public response or heavy penalties.

SECTION 2. NOISE AND PERSONS ON SITE

2.1 GENERAL.

2.1.1 Training. Personnel should be informed about the need to reduce noise and about the hazards of excessive noise. As part of their training, special attention should be given to the following:

(a) Proper use and maintenance of tools, machinery and related noise control devices.

(b) Positioning of machinery on site.

(c) Avoidance of unnecessary construction, maintenance and demolition noise.

(d) Protection of persons against noise, including use, care and maintenance of hearing protection devices.

(e) Operation of sound measuring equipment by selected personnel.

2.1.2 Self-help by Workmen. The education program should make it clear that there are several ways in which the workmen can help themselves to protect their hearing. For example, workmen can help themselves by—

(a) using and maintaining measures adopted for noise control;

(b) reporting defective noise control equipment to the foreman or supervisor;

(c) recognizing the need for the use of hearing protection where required; and

(d) not damaging or misusing the ear protectors provided, and by immediately reporting any damage or loss of such items to the foreman or supervisor.

2.2 NOISE-INDUCED HEARING LOSS.

Excessive noise levels can cause permanent hearing impairment. The incidence of hearing impairment increases as the amount of exposure to noise increases.

NOTE: The risk of hearing impairment can be reduced by reducing noise exposure. This can be achieved by the reduction of high noise levels and duration of exposure. Where technical and economic problems delay the reduction of noise exposure, provision should be made for appropriate hearing protection devices for workmen exposed to high levels of noise.

If mechanical or power tools are used on site then potentially hazardous areas can exist. These areas should be located by carrying out a noise survey and warning signs should be set up identifying noise hazard areas. A prominent notice prohibiting entry of persons not wearing effective hearing protection devices should be displayed at the entrances of noise hazard areas. The noise levels should be checked periodically.

Noise levels can be significantly increased to hazardous levels by reverberation from reflecting surfaces and special care should be exercised where power tools are used in confined spaces, e.g. in tunnels, basements or even between reflecting walls.

Also, steps should be taken to reduce noise levels where several tools, which may be relatively quiet by themselves, are used together. The resultant noise level from all the sources may be excessive.

2.3 PROTECTION OF PERSONS.

If persons on site not engaged in noise-generating operations cannot be given quiet areas to work in, alternative solutions such as the use of one or more of the following may be considered:

(a) Machinery enclosures (see Paragraph F1 of Appendix F).

(b) Personal hearing protection devices complying with AS 1270.

(c) Acoustic enclosure (see Paragraph F2 of Appendix F).

(d) Acoustic screen (see Paragraph F3 of Appendix F).

Due regard should be given to safety and practicability when any of the above alternatives are adopted.

Screens and barriers reflect noise and where it is necessary for persons to work close to the noisy side of a screen the level of reflected noise can be reduced by providing a screen with a sound-absorbent surface on the noisy side.

Careful plant layout and the phasing of operations can reduce noise.

Rest areas should be protected from high noise level.

2.4 HEARING PROTECTION.

While the beneficial effects of improved equipment design are being awaited, priority should be given to the measurement of noise, evaluation of the noise hazard, and the lowering of significant noise exposure by engineering methods or administrative controls. Where such methods of hearing conservation are not immediately feasible, it becomes necessary to introduce other methods, such as the wearing of hearing protection devices.

In areas where personal hearing protection is specified, it may be necessary to modify the tone and/or intensity of warning signals or provide additional methods of warning so that persons are adequately alerted to any hazard. If reliance is placed on sound warning signals, checks should be made that they can be heard by persons wearing hearing protection devices.

2.5 SELECTION AND USE OF HEARING PROTECTION DEVICES.

NOTE: Clause 5.3 of AS 1269 describes the various types of personal hearing protection devices commonly in use in Australia and Clauses 5.4 and 5.5 of AS 1269 describe the procedures in relation to selection of hearing protection devices and their fitting, use, maintenance and supervision. AS 1270 gives the specification requirements and methods for testing the hearing protection devices. Data on the attenuation of various hearing protection devices commonly in use in Australia is also available on request from the National Acoustic Laboratories, 5 Hickson Road, Millers Point, Sydney, N.S.W. 2000.

Where hearing protection devices are to be used, the following points should be borne in mind:

(a) The hearing protection devices should provide reliable and adequate protection for the noise level conditions under which the wearer will have to operate.