

**a guide to noise in the  
music entertainment industry**

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## About this guide

This guide will help you prevent excessive noise from music or musical performances. It explains how to prevent the risk of excessive music noise to workers and others.

Excessive noise is sound that may damage a person's hearing. For example, noise which might not be considered excessive becomes excessive and can cause hearing damage to a person who is exposed to it regularly.

Loud music is not necessarily the only way in which hearing can be damaged at music workplaces. A loud explosion during a pyrotechnical segment of a performance or loud percussion noise can also cause hearing damage.

Hearing damage diminishes a person's quality of life no matter how it is caused. This guide will help you stop this happening to people in your workplace.

## Music workplaces

This guide applies to music workplaces when loud music or sounds are delivered to customers as the main product or service or as part of other products and services, for example, a one-off musical performance in a concert hall or music bowl, or the loud music and sounds of a rock band in a hotel or nightclub.

Table 1 lists music workplaces and activities in which noise may be created. It also lists types of workers in these music workplaces, who may be exposed to excessive noise.

## Who should use this guide

This guide will help:

- employers
- owners
- operators of entertainment venues
- technical and service staff
- promoters, performers and entertainers
- hotel, nightclub, disco and theatre operators and managers
- people in control of music workplaces
- workers

## What does this guide cover?

This guide deals with:

- performances by rock bands or other bands playing loudly
- disco operators when music is played loudly
- recorded music retailing when in-store music is played loudly
- disc jockeys when their productions generate loud noise
- karaoke performances when performed loudly
- theatre restaurant performances performed loudly
- floor shows performed loudly
- band and orchestra rehearsals and performances conducted loudly
- high sound levels during recording sessions
- music played loudly during aerobics classes or performances

### Music noise management strategies

Appropriate music noise management strategies are included in Table 2 and Appendix A of this guide. Your strategy will depend upon whether you are the owner, operator, performer, employer, or worker at the music workplace. Your strategy will also depend on the type of workplace and your role in it.

### Measuring music noise

Measuring music noise can be a complex operation, and people in music workplaces are not normally experienced in this field.

Appendix C details a number of information products to help you measure and control music noise at work. You may also need to contact a health and safety professional who is able to provide audiometry measuring services and advice on controlling noise in your music workplace.

### Music noise solutions

To assist your risk management process, Appendix B contains a number of music noise solutions to help.

# noise in music entertainment

# Table 1

## Music workplaces, activities and types of workers

Type of workplace	Activities producing excessive noise	Type of workers/others affected
pubs, taverns and bars	<ul style="list-style-type: none"> <li>– rock band playing loud music</li> <li>– disc jockey playing loud music through PA system</li> <li>– karaoke performance too loud</li> </ul>	bar staff, kitchen staff, glass collector security officer, patrons
clubs (hospitality) and casinos	<ul style="list-style-type: none"> <li>– floor show with loud music</li> <li>– band playing loudly in entertainment area</li> <li>– disc jockey playing loud music</li> </ul>	cashier collecting money from poker machines, restaurant staff, waiting staff, bar staff, patrons
performing arts venues	<ul style="list-style-type: none"> <li>– sound level too high during rehearsal and performance</li> </ul>	performers, house staff, other support staff, patrons
concert halls and theatres (usually not, but can include movie theatres)	<ul style="list-style-type: none"> <li>– band, orchestra and music group playing loudly during rehearsals, and performances</li> <li>– recorded music too loud</li> </ul>	producers, directors, venue staff, performers, performers' technical support staff, other staff providing services, eg security, ambulance or police, ushers, catering staff, patrons
outdoor concert venues (stadiums, music bowls)	<ul style="list-style-type: none"> <li>– band, orchestra and music group playing loudly</li> <li>– loud special effects, eg fireworks</li> </ul>	Performers, performers' technical support staff, venue staff, other staff providing services, eg security, ambulance or police, ushers, catering staff, patrons
cafes and restaurants	<ul style="list-style-type: none"> <li>– theatre restaurant performance too loud</li> <li>– rock band in a restaurant playing loud music</li> </ul>	catering staff, bar staff, kitchen staff, waiting staff, patrons
sound recording studios	<ul style="list-style-type: none"> <li>– sound levels too high during recording sessions in a studio</li> </ul>	sound recordist, producers, performers, directors, other staff
education establishments	<ul style="list-style-type: none"> <li>– band playing too loudly during training periods</li> </ul>	teachers, band members, other staff
recorded music retail establishment	<ul style="list-style-type: none"> <li>– tapes, CDs and records played too loudly through store PA system</li> </ul>	sales staff, customers, neighbours
other venues	<ul style="list-style-type: none"> <li>– recorded music played too loudly during aerobics classes</li> </ul>	aerobics instructors, students, neighbours

# Table 2

## Music noise management strategy selection grid

	Strategy
Owner but not operator	1
Employer, operator or person in control of an entertainment venue	2
Entertainment provider	3
Employer of non-music workers	4
Suppliers and installers of sound equipment	5
Worker or non-employing performers	6

Attachment A explains each strategy.

# Strategy 1

You are a person who owns, but does not operate a type of music workplace. Owners may lease the workplace to someone else who conducts the business.

**Note** An owner may be an operator. For example the owner of a casino may also operate the casino in which music noise is generated. In this case you will need to follow **Strategy 2**.

## Owner but not operator

### What to do

As an owner you have no direct responsibility to provide advice or information about health and safety to the operator. However, it may be advisable to bring the following matters to the attention of the operator:

- your health and safety policy
- the legal requirements of the Division of Workplace Health and Safety legislation
- the *Division of Workplace Health and Safety Advisory Standard for Noise*
- this guide

**Note** To avoid complaints from neighbouring premises, you may wish to advise the operator about the *Environmental Protection Act 1994*, concerning noise from commercial premises. Consult the *Environmental Protection (Noise) Policy 1997* for detailed information.

## Strategy 2

You are the person who operates a music entertainment venue listed in Table 1. You will normally be the person who directly engages the services of an entertainment promoter or music performer. Most likely you will be a hotel licensee, nightclub or disco proprietor, a live theatre manager, or a music store operator. For workers not in your employment but providing a service for you in your music workplace, refer also to **Strategy 4**.

### What to do

#### General

As an employer, operator or person in control of a workplace, you should:

- ensure your documented health and safety policy includes your obligation to prevent risks from exposure to excessive noise
- communicate this policy to your workers, music promoters and/or performers
- be familiar with the requirements of the **Workplace Health and Safety Act 1995**, the **Workplace Health and Safety Regulation 1997** and the **Advisory Standard for Noise**
- provide training and instruction for permanent and regular casual staff on the risk of noise-induced hearing loss and correct use and maintenance of personal hearing protectors
- provide appropriate information on the risks of exposure to excessive noise for new, visiting or casual workers. For this, you may wish to use the Division of Workplace Health and Safety's brochure **Workers, Employers and Noise at Work**
- be familiar with the contents of this guide and follow the instructions in it
- communicate these matters to the workers and promoters or performers you engage
- specify maximum noise limits in your contracts with promoters and performers

- **employer, operator or person in control of a music entertainment venue who employs workers, not involved in the making of music**
- **employer, operator or person in control of a music entertainment venue who engages a promoter or performer to provide music**

### Noise assessment

- identify situations and areas where noise is likely to be excessive. Generally, if a person needs to speak in a raised voice to be understood one metre away from another person the noise level is likely to be excessive
- arrange for a noise assessment to be carried out by a competent person during a typical performance in the venue
- document the room loss between the reference position and staff locations

### Noise reports

Arrange for noise survey reports to be carried out to measure and report on typical noise levels. For example:

- ensure all music and non-music performing areas are included in the report
- report on a performance which is loud and one when an average crowd is in attendance

### Music level

Use the following strategy to account for variations in music level from one performance to the next

- determine the music level prior to each new performance by requesting this information from the music provider. If this is not available arrange to have the music level monitored
- estimate the received noise at each staff location by subtracting the room loss from the music level
- adjust the received noise according to the duration of the performance, to determine the 8 hour exposure for each worker location
- refer to Appendix B for ideas on preventing music noise

# Strategy 2

## Noise reduction

If 8 hour exposures are excessive use the following options to reduce noise at the source:

- consult with the entertainment provider, health and safety officers or representatives
- decide on a maximum music level. Include this agreed music level in a contractual agreement with the entertainment provider
- reduce the noise through architectural and other means including:
  - move the stage and/or loudspeakers to increase the distance between performers and workers
  - move the stage and/or loudspeakers to direct less sound towards staff locations
  - when there are multiple speaker arrays, for example discos, concerts or in-store music, reduce the sound levels of those speakers closest to staff or install directional speakers above the dance floor
  - install sound limiters in the music amplification systems as required
  - increase acoustic absorption in the room through acoustic ceiling, acoustic wall linings or carpet. Consider the overall environment, for example, wood panelling has poor sound absorption qualities, but by spacing the panels slightly apart and out from the wall with acoustic material behind it, absorption qualities may be increased
  - install screening next to the bar, kitchen, door or recording sales counters
  - apply sound absorption materials to bar, servery or door staff areas (Note - there are special requirements for washable, impervious facing materials for these materials in any food processing or serving area)
  - use walls and doors with suitable acoustic performance qualities to ensure adequate acoustic separation of areas such as box offices, kitchen, staff rest rooms, administration areas
  - seek professional assistance from acoustic consultants or sound engineers, architects or designers

- reduce the 8 hour exposure level through reducing the amount of time workers are exposed to the music noise. This may involve an agreed arrangement for rotating staff between noisy and quiet areas
- identify areas where peak noise levels exceed 140 dB(Lin) and instruct staff to avoid these areas unless they wear appropriate personal hearing protection

**Note** When renovating or refurbishing, ask the architect or designer to consider ways of maximising room loss.

## Obligations

You have health and safety obligations to all workers whether they have been hired directly or through labour-hire services.

One of these obligations is to prevent excessive noise damaging their hearing and health. This can be done by:

- increasing the distance between non-music performing workers and the stage area or loudspeakers
- reducing the music level to within the workable range
- reducing the foldback levels on the stage to lower (but still workable) levels
- reducing sound output from individual instruments, for example damping drums or using smaller amplifiers
- informing workers of their likely noise exposure
- ensuring the labour-hire organisation also discharges its workplace health and safety obligations for these workers

## Personal hearing protectors/education

Providing personal hearing protectors does not remove your duty to reduce noise as far as possible. However, it may not be possible to avoid exposing people to noise above the exposure limit. In these cases:

- provide personal hearing protectors to affected workers such as catering staff and performers as well as to patrons on request
- advise staff of their likely 8 hour exposure, for each new performance which has a different music level
- ensure signs are placed to identify those areas where hearing protection must be used
- arrange training sessions, covering risk of noise-induced hearing loss and the availability, use and care of personal protective equipment
- ensure information on this subject is readily available

# Strategy 3

## Entertainment providers

You will most likely be a self-employed person who:

- promotes musical performances and engages the services of performers
- is engaged by an employer, operator or person in control of a music entertainment venue to supply or provide music entertainment
- leads a band, orchestra or other musical performing group and employs the musicians who perform in that group

Performers who work for an employer should refer to **Strategy 6**.

### What to do

#### General

As a promoter or performer in this situation you should:

- document and put into practice a health and safety policy which will prevent risks from excessive noise
- be familiar with the requirements of the *Workplace Health and Safety Act 1995*, the *Workplace Health and Safety Regulation 1997* and the *Advisory Standard for Noise*, and discharge your workplace health and safety obligations
- be familiar with the contents of this guide and follow the strategies in it
- communicate these issues to the performers and technical staff you engage and to your workers

#### Music level

Use any of the following solutions to solve music level noise problems:

- find out the music level of a typical performance under typical conditions. You may wish to combine your efforts with the venue operator to have the music level and the room loss measured on one typical occasion
- find out from the employer, operator or person in control of the music entertainment venue, whether there is an agreed maximum music level
- find out the results of assessments of excessive noise for the venue
- obtain the assessment results and see if they provide any useful information which will help you plan the musical performance
- remeasure the music level when there is a significant change in the musical instrument line-up, personnel, amplifier/speaker system or musical performance
- inform the venue operator of your music level prior to the performance
- ensure that means are available to monitor the music level during the performance. You could use direct measurement of the music level or refer to markings on a master volume scale
- adhere to the stated or agreed music level
- do not allow any person to enter an area when music noise is above 140 dB(Lin) peak contour, unless that person is wearing suitable personal hearing protectors

## Strategy 3

### Obligations

Some of the ways to discharge your obligations are:

- increase the distance between non-music performing workers and the stage area or loudspeakers
- reduce the music level to within the workable range
- reduce the foldback levels on the stage to lower (but still workable) levels
- reduce sound output from individual instruments, for example damping drums or using smaller amplifiers
- assess 8 hour exposures of performers and technical staff during a typical performance
- inform workers of their likely noise exposure
- provide education and training on hearing conservation practices and the availability, use and care of personal hearing protectors<sup>1</sup>
- document the training you provide including what, when and to whom it was provided and require these workers to acknowledge the training they have received
- provide appropriate hearing protectors when exposures are excessive. Musician's earplugs are now available which give more uniform reduction across the frequency spectrum
- provide training for front of house and backstage sound-mixing personnel

**Note** See obligations in **Strategy 2** when using the services of labour hire companies.

<sup>1</sup> Refer to Australian/New Zealand Standard 1269.3: **Hearing Protector Program** for specific information on the selection, use and maintenance of various types of hearing protectors. The standard also gives information on training and motivation of workers required to wear personal hearing protectors.

# Strategy 4

Most likely you will be an employer of security staff, catering staff, roadies, stage hands, sound and/or lighting staff, promotions and media personnel, police, ambulance.

## What to do

### General

- ensure prevention of risk from excessive noise is documented in your health and safety policy and procedures
- be familiar with the requirements of the *Workplace Health and Safety Act 1995*, the *Workplace Health and Safety Regulation 1997* and the *Advisory Standard for Noise* and discharge your workplace health and safety obligations
- be familiar with the contents of this guide and follow the strategies in it
- communicate these matters to your workers

### For each venue

- consult with the venue operator
- find out if your workers are likely to be exposed to excessive noise
- establish which employer is responsible for preventing exposure to excessive noise
- find out from the employer what control strategies will be used
- follow those instructions
- where required provide your workers with appropriate personal hearing protectors as advised by the venue operator

## Employer of service staff visiting a music entertainment venue

### Obligations

You should consider the following:

- provide education and training on hearing conservation practices and the availability, use and care of personal hearing protection<sup>1</sup>
- document the training you provide including what, when and to whom it was provided and require these workers to acknowledge the training they have received
- provide personal hearing protection with the most appropriate attenuation factor<sup>1</sup>

<sup>1</sup> Refer to Australian/New Zealand Standard 1269.3:

**Hearing Protector Program** for specific information on the selection, use and maintenance of various types of hearing protectors. The standard also gives information on training and motivation of workers required to wear personal hearing protectors.

## Strategy 5

Most likely you will be a supplier and/or installer of sound and lighting systems or power generating units for hire or sale by an owner, or operator of a music entertainment venue, for example a nightclub, hotel, concert hall or open-air concert to provide music sound amplification systems. You may also operate the equipment at the venue. You may be self-employed and/or employ staff to operate the equipment during a show or performance.

### What to do

#### General

- be familiar with the requirements of the *Workplace Health and Safety Act 1995*, the *Workplace Health and Safety Regulation 1997* and the *Advisory Standard for Noise* and discharge your workplace health and safety obligations
- make available information about the safe use of the plant you hire or sell
- be familiar with the contents of this guide and follow the strategies in it

## Suppliers and/or installers of sound equipment

### Information to be provided at point of supply

Advise the owner or operator about the following:

- the use for which the plant has been designed and tested
- the safe operating procedures for the sound systems, including any power generator
- any conditions which may cause a hazard to hearing
- the need to monitor the music level during the rehearsal and/or performance
- any areas where the peak noise level is likely to exceed 140 dB(Lin)

Advice could be given verbally, in writing or by fixing a hazard warning sign to a prominent part of the system, for example the mixing desk.

### Installation

- ensure loud speakers direct the sound away from staff work locations
- prevent access to areas in which the music level exceeds a peak level of 140 dB Peak (Lin)

### Operation

- obtain instructions on the control strategies which the owner or operator of the music workplace proposes to use to prevent the risk of exposure to excessive noise
- find out if there is an agreed maximum music level for the venue and adhere to it
- arrange for the music level to be monitored and advise the owner or operator of the venue

### Obligations

- ensure appropriate hearing protectors are provided and worn by each person in your control<sup>1</sup>
- provide workers with education and training on hearing conservation practices and availability, use and care of personal hearing protectors<sup>1</sup>
- document the training you provide including what, when and to whom it was provided and require these workers to acknowledge the training they have received

<sup>1</sup>Refer to Australian/New Zealand Standard 1269.3: *Hearing Protector Program* for specific information on the selection, use and maintenance of various types of hearing protectors. The standard also gives information on training and motivation of workers required to wear personal hearing protectors.

# Strategy 6

Most likely you will be:

- an employee of a catering company providing food and beverage services during a musical performance, such as a rock concert
- an employee in a music entertainment venue, working as bar staff, glass collector, security officer, usher, police or ambulance officer, chef, kitchen hand, stagehand, promotions and media officer
- a member of a band who works in a group and has been hired with other members of the group to play on certain nights in an entertainment venue
- an employee of an employer who works in a retail store which sells recorded music

- a worker of any employer
- a performer who is not referred to in Strategy 1, 2 or 3 but who is employed to work in a music entertainment venue

## What to do

### General

- find out from your employer whether your noise exposure at the music entertainment venue is likely to be excessive

### Obligations

- follow your employer's or the venue operator's instructions on the control strategies to be used to prevent the risk of exposure to excessive noise
- do not wilfully misuse or damage any equipment provided to reduce noise
- use the personal hearing protectors provided in the way you have been instructed
- report to your employer any new hazardous noise situations or any hearing loss or tinnitus (ringing in the ears) resulting from exposure to noise in the venue
- request annual hearing tests

**Note** If you are having difficulties hearing in a noisy environment when wearing hearing protectors, it may mean that you are using the wrong type of hearing protector or you may already have some hearing impairment. In that case consider using flat response, also known as musician's, type hearing protectors every time you are exposed to loud music.

## **Appendix B**

### **Music noise solutions**

# Example 1

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## Hotel with live band

A hotel owner/manager engages live bands on four nights a week. A competent person is engaged to conduct a series of sound level tests on a typical night in consultation with the relevant health and safety representatives.

A music level of 103 dB(A) is measured at the reference position at the edge of the dance floor five metres from the loudspeakers. At the same time received noise levels of 98 dB(A) at the bar, 97 dB(A) at the door and 100 dB(A) at the glass collector's ear are measured. The room loss values are calculated:  $103-98=5$  dB(A) for the bar,  $103-97=6$  dB(A) for the door and  $103-100=3$  dB(A) for the glass collector.

The normal performance lasts two hours (consisting of three forty-minute sets with quieter breaks in between). The adjustment to calculate 8 hour exposure is -6 dB(A) for a two-hour performance.

The 8 hour exposures on the night of tests are  $98-6=92$  dB(A) for bar staff,  $97-6=91$  dB(A) for the door staff and  $100-6=94$  dB(A) for the glass collector. Therefore staff are exposed above the exposure standard.

Following consultation with the health and safety representatives, the following architectural changes are made (see Diagram 1):

- changing the location of the stage
- putting acoustic absorption material on the ceiling and upper part of the walls opposite the stage and on the wall behind the bar
- placing an acoustic screen at the end of the bar closest to the stage
- replacing the doors to the kitchen and office with acoustic doors

A further series of tests show the room loss values are now 8 dB(A) for the bar, 10 dB(A) for the door and 4 dB(A) for the glass collector. An agreed job rotation scheme is introduced for the glass collector to minimise exposure time, thus reducing 8 hour exposure by a further 2 dB(A).

A joint policy decision is made not to employ bands with a music level above 103 dB(A), as a workable level for this venue.

Each new band informs the owner/manager of their music level before they perform. The 8 hour exposures of staff can then be determined. For example, a band with a music level of 100 dB(A) will cause an 8 hour exposure of 86 dB(A) for bar staff, 84 dB(A) for the door staff, and 88 dB(A) for the glass collector.

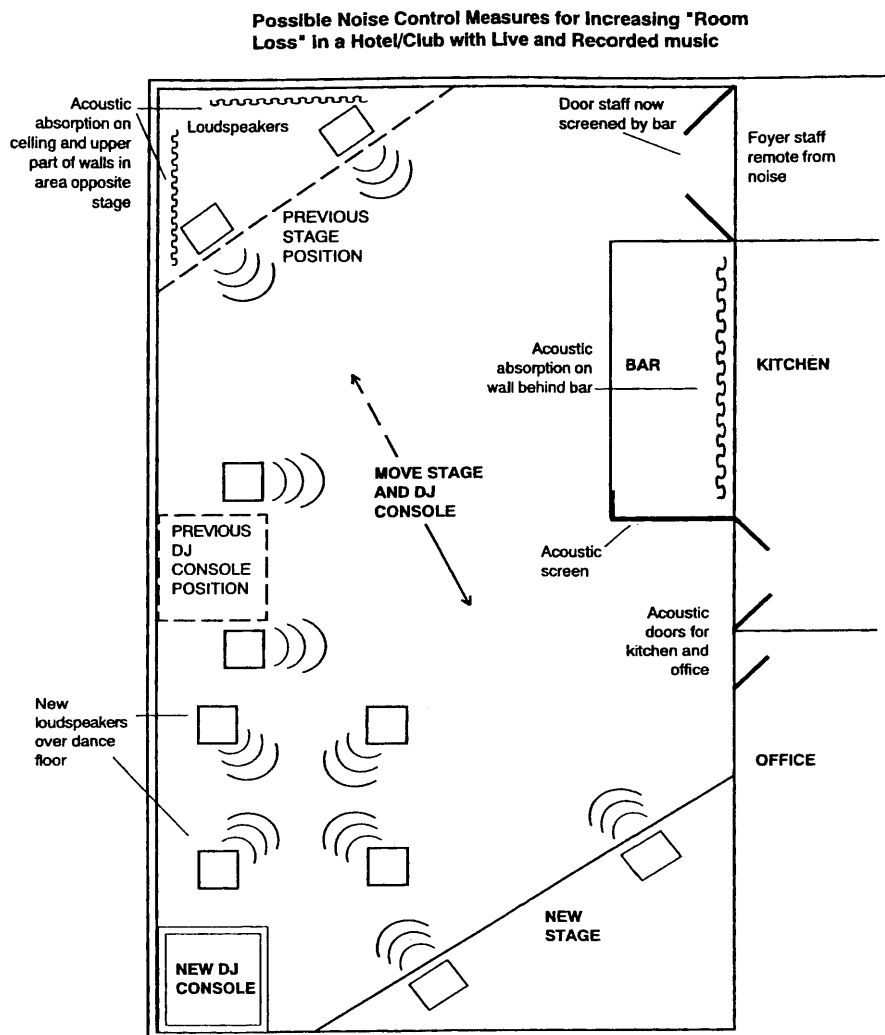
Since the glass collector still receives noise above the exposure standard on nights when the louder bands play, further long-term plans for noise reduction, including a review of the policy on music levels need to be developed. As an interim measure, suitable personal hearing protectors are provided with an education program on the effects of exposure to excessive noise levels.

## Music noise solutions

### Example 1

#### Hotel with live band

Diagram 1 Possible noise control measures for increasing room loss in a hotel/club with live music



## Music noise solutions

### Example 2

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#### Discotheque/cabaret venue

A discotheque owner presents recorded music via a different disc jockey (DJ) every night. The sound system is a fixed installation with the main loudspeakers near the dance floor and others throughout the room. The DJ's desk is used as a reference position and a competent person is engaged to measure the room loss from that point back to the positions occupied by the bar staff, glass collector and door staff. With a music level of 98 dB(A) at the reference position, the received noise at the employee locations ranges between 90 and 95 dB(A) (room loss of 3 to 8 dB(A)).

For an exposure of five hours, the adjustment to calculate 8 hour exposure is -2 dB. The 8 hour exposures therefore range between 88 and 93 dB(A). Those staff exposed above the standard on a typical night have now been identified.

In consultation with health and safety representatives, a sound ceiling above the dance floor is planned to be put in when the discotheque is renovated in six months' time. This is a ceiling with built-in speakers suspended above the dance floor. It gives a high sound level on the dance floor but lowers the sound in the rest of the room by around 10 dB(A).

Until then, staff are provided with personal hearing protectors combined with an education program. To keep the music level at or below 98 dB(A), a sound level meter is installed at the DJ's desk and the procedures to keep the sound below this level are discussed with each DJ.

## **Example 3**

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### Theatre for stage productions

A large theatre is used as a venue for staging performances ranging from opera to rock musicals and modern dance programs. For rock musicals the band may perform in the orchestra pit or a special platform above the stage, using a public address (PA) system brought in for the performance. Modern dance programs usually use pre-recorded music played back through the in-house PA system. For musicals and operas, the orchestra may perform from the pit and on some occasions vocalists may be amplified slightly through the in-house PA system. The theatre management employs door staff, ushers and technical crew, some who work backstage.

In consultation with the relevant health and safety representatives a policy decision is made to prepare a noise assessment for each new show. A reference position is selected at the pit conductor's position about three metres from the front of the stage. The music level for the show is measured at this position, while sound levels are simultaneously monitored at employee locations. The results of the tests for the first few shows indicated that it is only during rock musicals, modern dance productions and the louder operas that there is any likelihood of the exposure standard being exceeded. It is found that the room loss is about the same during these types of productions.

For future productions, the music level is monitored during a dress rehearsal from the reference position. The received noise of employees is calculated from the measured music level by subtracting the room loss values and the 8 hour exposure is determined by adjusting for the duration of the performance. Staffing rosters are then devised to minimise exposure and personal hearing protectors and education are provided for those still exposed above the exposure standard.

### Example 4

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#### Promoter of entertainment performance in open-air stadium

Promoters of musical performances often have their providers tour various States in Australia. Consequently their stay in any one State is relatively short. A stage area and sound amplification structure is usually rapidly erected prior to the performance. It is just as rapidly broken down after the performance. The workers erecting the stage area and/or installing the sound system may be part of the performer's support team or may be hired locally. Stage builders and sound system installers can tend to monopolise the setting-up process. During this stage the venue operator often loses control.

Under the *Workplace Health and Safety Act 1995* however, the venue operator remains ultimately responsible for the health and safety of any worker on the premises.

Setting up or breaking down a stage area and other associated structures, typically occurs in a very short period of time, usually within a day, and is therefore a very high-risk activity. These activities cause a variety of health and safety issues which need attention. They also cause high noise levels. There is no facility for the appointment of a principal contractor as the building of a stage is not construction as defined in the Act.

However, there is usually a lead-in period of at least a year between the first negotiations with the performer and the actual performance. During this period the promoter must obtain licences to stage the event. One of those licences deals with a limit to the level of noise going out from the stadium into the neighbourhood.

As the promoter hires the performer(s) and ancillary workers these people become the promoter's agents and therefore the promoter is responsible for their health and safety. The promoter should also submit a plan to the venue operator as to how health and safety will be managed in the venue. This will include the management of the expected noise levels within the venue in order to prevent workers' exposure to excessive noise. The plan should also include details of noise control measures for other workers. The plan can then be negotiated with the venue owner and used to control risk from exposure to excessive noise as well as other health and safety risks.

### Example 5

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#### Music retail store

A retailer has two retail music stores catering to customers with differing tastes in music. Store 1 specialises in heavy metal music while Store 2 retails classical music and jazz. One of the marketing strategies is to entertain customers by playing current selections and requests via an in-house PA system, with speakers throughout the store.

The management of the stores and the health and safety representatives define a reference position in the middle of each store and selects CDs of typical music played.

A competent person is engaged to measure music level and room loss from those points back to the staff positions at the sales desks.

Music levels of 94 dB(A) and 75 dB(A) are found in Stores 1 and 2 respectively. Room losses of 3 dB(A) are found in both cases. As sales staff work 8 hour shifts their '8 hour exposures' are above the exposure standard for noise in Store 1, but below it in Store 2.

Changes are made to the sound system in Store 1 to allow the volume of the speakers to be controlled independently. Those next to sales desks are fixed at a low level and the others are adjusted to give a music level of 90 dB(A) at the central reference position, giving a received noise of 87 dB(A) at the sales desk. Sales staff are then rostered to work four hours each day in each store, resulting in 8 hour exposures of 84 dB(A).



## Appendix C

### For more information

Products on noise are:

- Noise in the music entertainment industry safety link
- Noise dose meter
- Music noise sampler compact disc

For more information or for copies of these products, contact the Division of Workplace Health and Safety

**Freecall 1800 177 717**

**Publications (07) 3247 4729**

**Internet [www.detir.qld.gov.au](http://www.detir.qld.gov.au)**