

Assessing music noise from indoor venues

Updated October 2021¹

EPA 279/21: This guideline assists planning authorities and proponents of development to assess development applications for indoor entertainment venues and other premises at which music may be played and for new noise sensitive development proposed near an existing music venue.

Introduction

This document provides guidance on development applications involving an indoor music venue that are assessed by a planning authority or subject to a liquor licence application where an interface between a noise sensitive land use and an indoor music venue may be created.

This guideline applies to both new indoor music venues and new encroaching noise sensitive land uses. It does not address noise associated with large-scale outdoor entertainment areas, for which noise management should be proposed and assessed on an individual basis. This guideline also provides general information on other noise sources associated with entertainment venues which may require assessment by planning authorities, such as noise from patrons, car parks, and small-scale outdoor entertainment areas.

Proper assessment of indoor music venues: Why it is important

Modern music generally has a considerable amount of bass energy associated with the beat component of the music. Bass frequencies (the component of music generally associated with lyric and melody) pass through a building façade with greater ease than higher frequencies. This is due to the lower frequencies having longer wavelengths which are not be attenuated and absorbed by the surrounding environment as easily as higher frequencies with shorter wavelengths. This often results in a pronounced bass beat in the complete absence of other components of the music within an affected building. This noise can be disturbing even at very low levels and is generally the cause for complaint, particularly where it continues into the early morning hours.

The amenity value of a *noise sensitive* area – that is, an area with residences, hospitals, motels and the like – can be adversely affected by unwanted noise. The amenity value of the area can be adversely affected if the noise is easily perceived² by an average person engaged in an activity appropriate to a particular location, eg conversation in an outside area, recreation in a living room, and resting or sleeping in a bedroom.

Noise associated with music from entertainment venues, public halls, hotels and the like has been a frequent cause of complaint to the Environment Protection Authority (EPA), Consumer and Business Services, local government and the police. Resolution of these complaints can be difficult, and may compromise activities at the venue while not fully satisfying the concerns of affected residents. It is important that the first occupancy is protected by the encroaching

¹ Issued July 2015

² 'Easily perceived' means that the noise is perceived during the normal course of the appropriate activity while the listener is making no special effort to hear the noise.

development taking responsibility for any noise attenuation to their new development (whether music venue or residential development). Properly located, designed and operated entertainment venues need not have an adverse effect on the amenity value of surrounding areas.

Denser development and high-rise inner city living have become more popular and it is now recognised that, in addition to a criterion for the design of a music venue, it is also necessary to have a criterion to protect the internal noise amenity for noise sensitive development encroaching on an existing music venue.

Complaints about music venue noise are dealt with (if the venue has a liquor licence as is mostly the case) by [Consumer and Business Services](#) with the support of the [SA Police Licensing Enforcement Branch](#).

Addressing noise issues associated with indoor music venues

Through the planning system the EPA may provide advice on matters relating to new indoor music venues in order to reduce potential environmental nuisance caused by noise. However, the EPA's involvement in assessment matters related to indoor music venues is limited and much of the assessment is undertaken by the planning authority and Consumer and Business Services.

If the issues raised in this guideline are properly considered at the planning stage, the entertainment venue should be able to operate without adverse impact. In addition, the considerable cost and logistics of addressing a complaint may be offset by addressing the issues prior to development.

The following information will assist planning authorities and Consumer and Business Services to undertake an assessment of a development application involving an indoor music venue.

Certification by an acoustic engineer

When a development application is prepared it would be prudent for a competent acoustic engineer³ to be engaged to assist with the design of any proposed music venue or any noise sensitive development encroaching up to an existing music venue.

As part of the development application assessment process, the acoustic engineer should provide 'certification' (a letter or a report) attesting that the music venue or residential and other noise sensitive development is designed to achieve the music noise criterion as noted in this guideline. The planning authority may wish to engage an acoustic engineer of its own to review the certification provided during the assessment process.

The certification process provides an objective means to assess the music noise impact; however, notwithstanding the benefits of resolution of potential music noise issues at the planning stage, the planning authority should note that the acoustic engineer's certification process can be a significant cost and time burden for some proponents.

The following information is for the use of consultants preparing an application for, or a planning authority undertaking an assessment of, development that includes an indoor music venue or would create an interface between an indoor music venue and a noise sensitive land use.

New music venue

If the development is for a venue at which music is the prime source of entertainment, such as a night club, or is such that music noise is likely to be audible outside the venue, the planning authority should require certification from a competent acoustic consultant that the building is designed to achieve the music noise criterion as noted.

³ An acoustic engineer will have an appropriate engineering qualification with an acoustic component, sufficient experience in acoustics, is eligible for full member status of both the Australian Acoustical Society and the Engineers Australia and will carry sufficient professional indemnity insurance to cover any potential loss due to the consultancy.

Noise criterion

The EPA recommends the following design criterion be applied by an acoustic engineer for certification.

The music noise ($L_{10,15}$) from an entertainment venue when assessed externally at the nearest existing noise sensitive location should be:

Less than 8 dB above the level of background noise ($L_{90,15}$) in any octave band of the sound spectrum.

The above criterion can be expressed as follows:

$$L_{OCT10,15} \leq L_{OCT90,15} + 8 \text{ dB}$$

The design criterion is for use by an acoustic engineer, and is not intended to be used as a condition of development approval as it is difficult to measure and enforce.

Background noise

The background noise level ($L_{OCT90,15}$ and/or $L_{A90,15}$) should be the lowest background noise level measured over a 15-minute period during the time of day when the proposed development will operate. Typically the lowest background noise level would be found in the early morning hours.

Maximum internal noise level

The acoustic engineer will design with an assumed maximum level of noise within the premises which is representative of the noise level associated with the type of entertainment proposed for the premises. It is generally derived by measurement at a similar venue. If the maximum level of noise assumed for the purposes of certification is exceeded during operation of the venue, the level of noise external to the premises will also be higher than certified.

Monitoring devices

Where it is likely that the internal music noise level will vary substantially, which may occur when different entertainers use the premises (DJs, live bands, different forms of music on different evenings), the planning authority may consider requiring the proponent to install an inhouse music system which the entertainers must use, and which incorporates a device to monitor and control the internal noise level. Such a device controls the inhouse amplification equipment so that the maximum internal noise level certified by the acoustic engineer is not exceeded. A competent acoustic engineer will have details of such equipment.

Encroaching residential development

If a development includes noise sensitive land uses near an existing indoor music venue where it is likely that noise from the indoor music venue may be audible inside the sensitive development, the planning authority should require certification by a competent acoustic engineer that the music noise criterion as noted below will be achieved inside the subject premises.

Certification criterion

The EPA recommends the following criterion be applied by an acoustic engineer for certification:

Noise from any music venue must not exceed 43dB L_{eq} in any one-third octave band between and including 31.5Hz and 125Hz when assessed inside a noise sensitive development, including a bedroom and living room of a residential or short term accommodation premises with windows closed.

This also applies where the receiver is located in the *same* building as the amplified music venue, eg an upstairs residential apartment in a multi-story mixed use development with a separately owned commercial music venue (eg tavern) on the ground floor.

This does not apply where noise sensitive development, including short-term accommodation premises, and amplified music venue are within the same building and are owned and operated by the same entity, eg a hotel with accommodation upstairs and a music venue downstairs.

Acoustic treatment

In most cases certification will be required from the acoustic engineer specifying what acoustic treatments are to be incorporated in the venue or noise sensitive premises. This might include roof treatment, double glazing, entrance 'airlocks', treatment of air conditioning and ventilation systems, and so on.

Conditions of approval

The planning authority will need to determine the appropriate conditions to be attached to any development approval (with consideration given to any conditions recommended in the certification from the acoustic engineer), but matters that may need conditioning include:

- hours of operation
- implementing acoustic treatment measures nominated by the acoustic engineer in order to meet the criteria required by the certification (the treatment measures may be applied at the new music venue or to the sensitive use encroaching on the existing music venue)
- limiting the internal noise level during operation of the music venue to that assumed by the consultant during certification in order to ensure that the external noise level at the music venue is not exceeded
- installing an inhouse music system which the entertainers must use, and which incorporates a device to monitor and control the internal noise level.

For developments that are particularly noise sensitive, compliance checking by an acoustic engineer that confirms the criterion and other conditions of approval have been achieved could be required prior to occupation of the premises. Compliance checking would be of benefit where particular acoustic treatments were required, and/or where a limiting device was requested to be installed.

In situations that are unlikely to have an adverse impact on the nearest noise sensitive location (such as where only 'background' music is proposed to be played in a restaurant and the nearest residential premises are at a substantial distance), an alternative to the certification process may be an operating condition which states that the music noise shall not be audible at the nearest noise sensitive location.

Other noise associated with indoor music venues

In addition to music noise, other noise sources associated with entertainment venues may require assessment by planning authorities.

Patron noise

Noise from patrons approaching or leaving entertainment venues is a frequent cause of complaint and would be addressed by Consumer and Business Services with the support of the SA Police Licensing Enforcement Branch. When assessing proposals to develop entertainment venues planning authorities could consider how design, such as the location and design of fencing and entrances to such venues, could assist in keeping patrons away from noise sensitive areas.

Developers should seek advice from an acoustic engineer to minimise potential impacts on the area.

Car park noise

Car parks associated with entertainment venues tend to be a gathering place for patrons as they arrive at or leave the venue. Venue patrons often have little regard for the amenity of residents in properties adjacent the car park. The noise of slamming car doors, revving car engines and squealing tyres can be disturbing.

Careful choice of car park location is essential to the proper planning of entertainment venues.

Proposals for venues:

- with large car parks

AND/OR

- where the car park is adjacent to residential areas without the buffer of a major road or substantial distance, eg less than 50 m

AND/OR

- where the proposed closing time is in the early morning hours,

should be referred to an acoustic engineer for advice on minimising car park noise.

Small-scale outdoor entertainment areas

Some entertainment venues have small-scale outdoor areas where patrons may gather, eg hotels, taverns and sporting clubs with beer gardens. Noise from music (background music or featured entertainment) and patron noise (voices, laughter, etc) can be disturbing. Such areas should not be located where they may impact upon any noise sensitive land use. The impact of music noise is generally greater than people noise, so some outdoor areas may be suitable for people to gather but not suitable for music.

Where the risk of disturbance is not great but some noise sensitive land uses are nearby, a condition of development approval should prevent use of the area late at night.

Glossary

dB	decibel; the unit of measurement for noise levels
dB(A)	'A' weighted decibel; the 'A' weighting approximates to the frequency sensitivity of the human ear
Hz	Hertz; unit for frequency
L_{10,T}	the noise level that is exceeded for 10% of the observing period T
L_{90,T}	the noise level that is exceeded for 90% of the observing period T
LA_{10,T}	the A weighted noise level that is exceeded for 10% of the observing period T
LA_{90,T}	the A weighted noise level that is exceeded for 90% of the observing period T
Loct10	the L ₁₀ of the noise level in a specified octave of the sound spectrum
Loct90	the L ₉₀ of the noise level in a specified octave of the sound spectrum
T	time in minutes

Disclaimer

This publication is a guide only and does not necessarily provide adequate information in relation to every situation. This publication seeks to explain your possible obligations in a helpful and accessible way. In doing so, however, some detail may not be captured. It is important, therefore, that you seek information from the EPA itself regarding your possible obligations and, where appropriate, that you seek your own legal advice.

Further information

Legislation

[Online legislation](#) is freely available. Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet
 Adelaide Service SA Centre
 108 North Terrace
 Adelaide SA 5000

Telephone: 13 23 24
 Facsimile: (08) 8204 1909

Website: <https://service.sa.gov.au/12-legislation>
Email: ServiceSAcustomerservice@sa.gov.au

General information

Environment Protection Authority
GPO Box 2607
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Telephone: (08) 8204 2004
Facsimile: (08) 8124 4670
Freecall: 1800 623 445 (country)
Website: <https://www.epa.sa.gov.au>
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