Strategies for noise complaints relating to musical instruments and AV equipment

A guide to help officers deal with noise complaints associated with music equipment and musicians

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City of Kalamunda

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1. Introduction

This guide is designed to support Environmental Health Officers (EHOs) in addressing noise complaints involving musical instruments. It provides systematic strategies to achieve resolutions that satisfy complainants while preserving the inherent character and performance integrity of the instruments.

2. Instruments using electronic amplification

Environmental Health Officers (EHOs) frequently encounter noise complaints involving musicians or bands using electronic amplification. Addressing complaints from a single musician practicing or recording with amplification is typically more straightforward than dealing with an entire group. In such cases, EHOs may instruct the musician to reduce the volume after one hour of practice—aligned with noise regulations that limit musical noise affecting neighbouring properties to one hour per day.

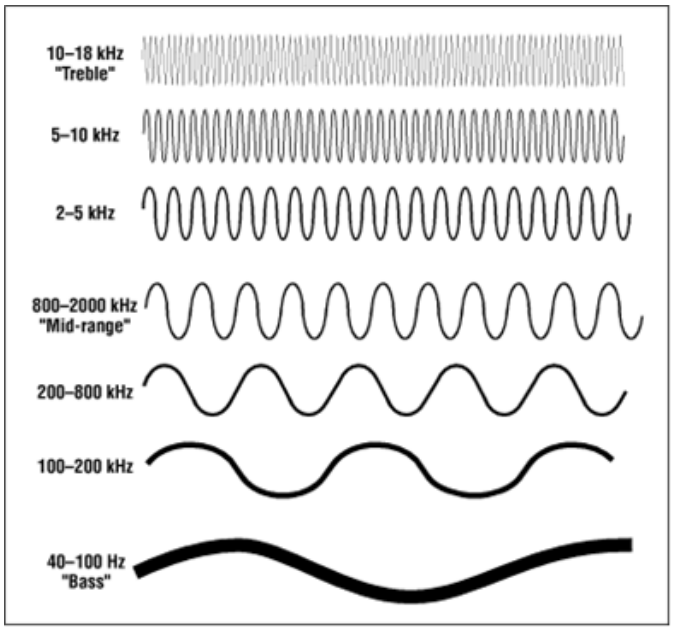
If reducing the volume adversely affects aspects of the sound—such as tone, gain, or EQ—the officer may require the musician to switch to headphones, provided the amplifier offers an auxiliary output. While most modern digital or solid-state amplifiers include headphone outputs, many vintage or tube amplifiers lack this option.

Amplifiers play a crucial role in refining a guitar's signal by minimising harsh noises and imparting a unique character specific to each brand. Tube amplifiers are designed to drive a speaker load—a critical factor for their optimal performance and longevity. Since headphones do not offer the same impedance and load characteristics as speakers, using them directly with a tube amp can potentially cause damage.

To safely use headphones with a tube amplifier, an attenuator is recommended. This device acts as a dummy load, enabling the amplifier to operate properly while allowing the musician to monitor the sound through headphones. An effective solution for this is the Rockboard RPA 100 Power Amp Attenuator, designed for valve/tube amplifiers with power outputs of up to 100W.

For musicians seeking cost-effective practice options, headphone-specific amplifiers provide an excellent alternative. These devices emulate the signature sounds of iconic amps—such as the Vox AC30, Marshall MS-2 Micro, and Blackstar amPlug—while remaining budget-friendly. For bass guitarists, the Aguilar AmPlug headphone bass amplifier stands out as an affordable recommendation, with many headphone amps available for as little as $20.

Tube bass amplifiers, on the other hand, are often expensive and difficult to source. Additionally, they typically lack headphone outputs, a feature that headphone amplifiers readily offer, making the latter a more practical choice for many bass players.



Most amplifiers are equipped with equalisation controls that allow musicians to adjust the tonal balance and the way sound propagates through space. Lower frequencies—or bass—travel farther than higher frequencies. As a result, subtle tweaks to these settings can significantly alter the instrument's tone. Understanding the limits of these adjustments is crucial to preserving the desired sound character.

Bass guitar players sometimes set the frequency range between 30 Hz and 125 Hz too high. In many cases, a well-balanced bass tone is achieved by reducing these frequencies—often even eliminating the lowest end around 30 Hz. Although this might seem counterintuitive for a bass instrument, it ensures that the kick drum in a band setting occupies that essential frequency range without interference.

Reducing the low-frequency content in a bass guitar's tone not only enhances clarity and articulation but also limits the distance the sound travels. This dual effect helps satisfy both the musician's tonal preferences and the concerns of nearby residents about noise levels.

In contrast, standard electric guitars typically emphasise higher frequency ranges. While they may have modest low-frequency boosts, reducing these frequencies can alter their overall tone, as guitars usually contribute to a band's brighter, more cutting sound.

Many amplifiers do not offer detailed frequency adjustments and are equipped only with basic tone controls labelled "Bass," "Mid," and "Treble." Here, "Bass" manages the lower frequencies, "Mid" governs the central range, and "Treble" affects the high frequencies. For more precise control over individual frequencies, musicians often use an equaliser pedal, which allows them to tailor their sound more finely than the amplifier's standard settings

3. Percussive instruments

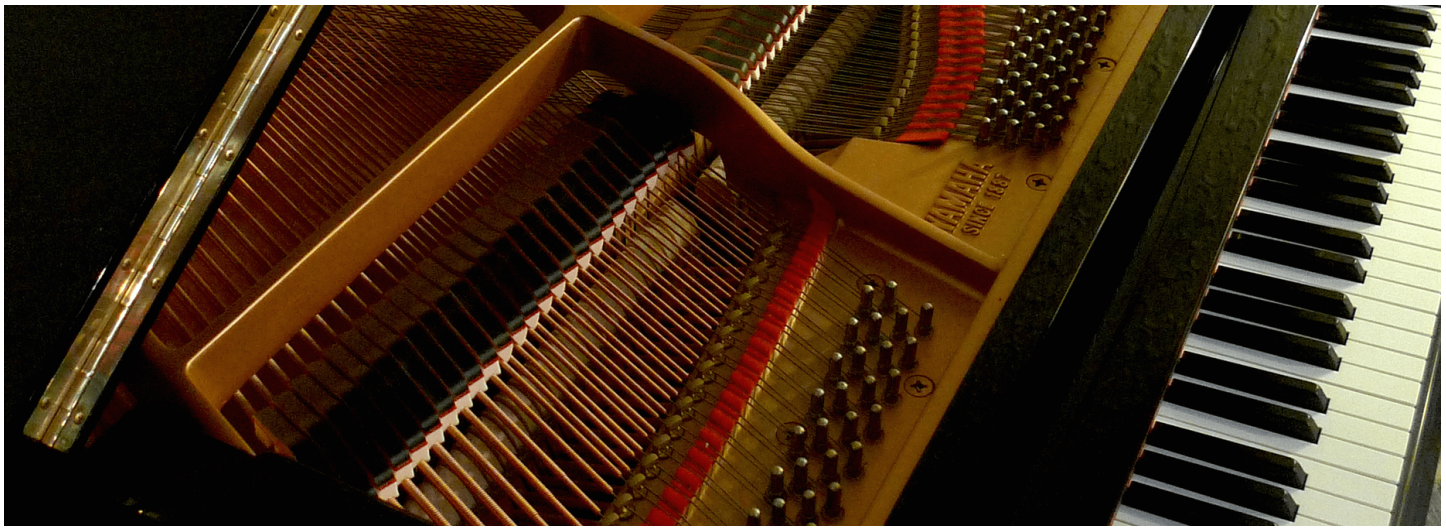
Percussive instruments such as a drum kit can be difficult to work with. This is due to most percussive instruments being completely acoustic therefore there is no option to simply turn the volume down or equalise the frequencies. Items such as mesh drumheads, head dampeners and quiet cymbals can be purchased to significantly decrease the volume of a drum kit. If this is not an option for the alleged offender then homemade drum dampening can be an easy option as it mostly involves commonly owned items like towels, blankets or even rolls of toilet paper for the kick drum.

EHOs may suggest that musicians mitigate noise from percussion instruments by placing towels or blankets on top of drumheads and cymbals. If this external damping significantly affects the feel of the drum or cymbal when struck, an alternative is to place noise-absorbing material inside the drums. However, it is important to exercise caution since excessive damping can result in an unresponsive, overly soft playing surface.

In addition to modifying the instrument directly, addressing the acoustics of the practice space can greatly reduce noise transmission. Some effective strategies include:

- **Drum Shields or Enclosures:** These physical barriers surround the drum kit, helping to contain and reduce sound leakage.
- **Isolation Mats or Rugs:** Placing the drum kit on a thick carpet or a dedicated drum platform can absorb vibrations and minimise sound transmission through floors and walls.
- **Wall and Ceiling Treatments:** Applying acoustic foam panels or other absorptive materials on adjacent walls and ceilings helps to confine sound within the practice area.

These noise mitigation strategies are applicable to most percussion instruments. When none of these measures adequately address the noise concerns, establishing specific practice time allowances can serve as a final solution to balance both the musician's needs and the peace of neighbouring areas.



4. Keyboard instruments

Electronic keyboards and synthesisers come equipped with integrated headphone outputs and volume controls, making them especially well-suited for practice in noise-sensitive environments. Musicians can easily reduce volume or switch to headphone use to address any potential noise complaints.

In contrast, traditional upright and grand pianos can pose greater challenges, particularly when they are not electronic hybrids. Acoustic pianos produce sound through a complex system involving approximately 230 strings that are struck by small, felt-lined hammers each time a key is pressed. This natural acoustic output is rich and resonant but can easily extend beyond the intended practice space.

Most upright pianos are designed with a dedicated practice pedal—typically the middle pedal on a three-pedal configuration. Engaging this pedal lowers a thin piece of felt between the hammers and strings, significantly damping the sound. This setup allows musicians to maintain their technique without generating the full acoustic output of the piano. An alternative solution involves retrofitting piano silencing systems, which mute or digitally reproduce the piano's sound through headphones by altering the traditional hammer-strike mechanism. However, these systems are generally expensive, require professional installation, and may not be the most feasible option for every situation.

Adjusting room acoustics and the placement of the piano often presents a cost-effective and highly effective noise mitigation strategy. Strategic measures include:

- **Repositioning:** Placing the piano away from adjoining walls or areas sensitive to noise minimises sound spill.
- **Angling:** Directing the piano's output away from adjacent spaces or potential complainants can reduce perceived noise.
- **Absorptive Materials:** Using a thick rug or carpet beneath the piano can absorb vibrations, while acoustic panels or blankets around the instrument further dampen sound reflections. These adjustments not only reduce noise but also improve the overall acoustical quality of the room.

5. Wind instruments

Environmental health officers may sometimes find it challenging to identify effective noise reduction strategies for wind instruments. Fortunately, there are several attachments available that can significantly mitigate sound emissions while maintaining the instrument's quality:

1. **Bell Covers:** Fabric or mesh bell covers are designed to fit over the instrument's bell—the primary point from which sound emanates. They help to slightly dampen the volume without compromising the clarity of the tone.
2. **Mutes:** Various types of mutes, such as straight, cup, and Harmon mutes, attach similarly to bell covers. These devices are engineered to alter the instrument's acoustic properties, reducing overall sound output while preserving essential tonal characteristics.
3. **Silent Brass Systems:** These systems function like traditional mutes but include a microphone that channels the instrument's sound directly through earphones. This allows musicians to practice or perform at lower volumes, satisfying noise control regulations while still delivering a full auditory experience through personal monitoring.

Each of these solutions offers a practical approach to managing noise, ensuring that both musicians and affected neighbours can benefit from improved acoustic balance.

6. Sound proofing vs sound dampening/absorbing

Sound dampening and soundproofing are often mistakenly treated as the same, yet they serve distinctly different purposes.

Soundproofing is about creating a barrier that prevents sound, noise, or vibrations from leaving a space. Its goal is to contain sound within a room (or keep external noise from entering), effectively isolating the source from its surroundings.

Sound Dampening (or sound absorption), in contrast, focuses on reducing the amount of sound that reflects off surfaces within a room. The aim is to minimise echoes and reverberations, producing an environment where, during quiet moments, the space experiences virtually no echo and maintains a near-silent atmosphere.

There are several effective methods for achieving sound dampening:

- **Soft Furnishings:** Items such as heavy rugs, couches, and other cushiony materials naturally absorb sound, reducing reflections.
- **Noise Dampening Tiles:** These are specialised, often more expensive, materials designed specifically to absorb sound energy, contributing to a quieter space.
- **DIY Acoustic Panels:** Constructing panels with a wooden frame lined with insulation and covered in felt is a cost-effective and highly efficient solution.

Each of these approaches serves to reduce the sonic reflections within a space, enhancing clarity without necessarily blocking all sound transmission. This distinction is key when aiming for an environment optimised for both acoustical comfort and functionality.

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