

## **Noisy Bars and the dangers of 'soundproofing'**

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In our increasingly noise sensitive society, entertainment noise is an area of particular concern. The redevelopment boom of turning city centres into modern residential and cultural zones means that once vibrant, and in many cases noisy areas which could once function without restraint must now comply with noise restrictions posed by local authorities or face the consequences. In difficult economic times (such as those present at the time of writing) there is a clear conflict of interests involving those who depend on providing entertainment to earn a living and those nearby who want a good night's sleep.

This problem extends further than the city walls however and small, local serving premises are also feeling the burden of increased intolerance towards entertainment noise. In many cases, the attitude of the local council and the associated Environmental Health Officers (EHO's) is to reduce noise via the introduction of a noise limiter device, "soundproof" the establishment via structural reinforcement or both. Failing this, there are seemingly few remaining options available. The licensee may choose to discontinue live/amplified music, however this often presents a financial headache due to a reduction of paying customers through the door. In this situation of spend money or lose money, the former must take precedence over the latter.

A recent case demonstrating this matter was dealt with by PDA at an establishment close to our rural HQ in Lymm, Cheshire. The bar "The Venue" is a popular destination for many people local to the area and indeed further afield, thanks to its popular 'open-mic' nights. However, a torrent of complaints from residents living above the bar led to council intervention, culminating in a served notice and the live entertainment license ultimately being removed.

### **The problem**

In order for the consultant to get a grasp of the problem, the first and logical step was to determine the severity of the noise by inspection. Primarily, the consultant should attend and measure generated noise levels internally within the offending premises, externally to determine noise break-out and where possible within the property of a known complainant. In order to gain access to a complainant, the appointed EHO is a valuable contact. Many people carry the misconception that the EHO is 'out to shut them down', however, to the consultant, the EHO is a person with whom to agree criteria and liaise with in order to achieve a successful outcome such that local residents, licensees and local authorities are all satisfied.

With access gained to the complainant's property the noise impact and the impact it was having on the complainant's amenity was clear. Songs were clearly audible and intelligible. Frequency analysis carried out at the time indicated a strong component of noise in range of the audible frequency associated with speech patterns. As humans, our ears, by evolution, are highly sensitive in this range and thus naturally exacerbate the problem.

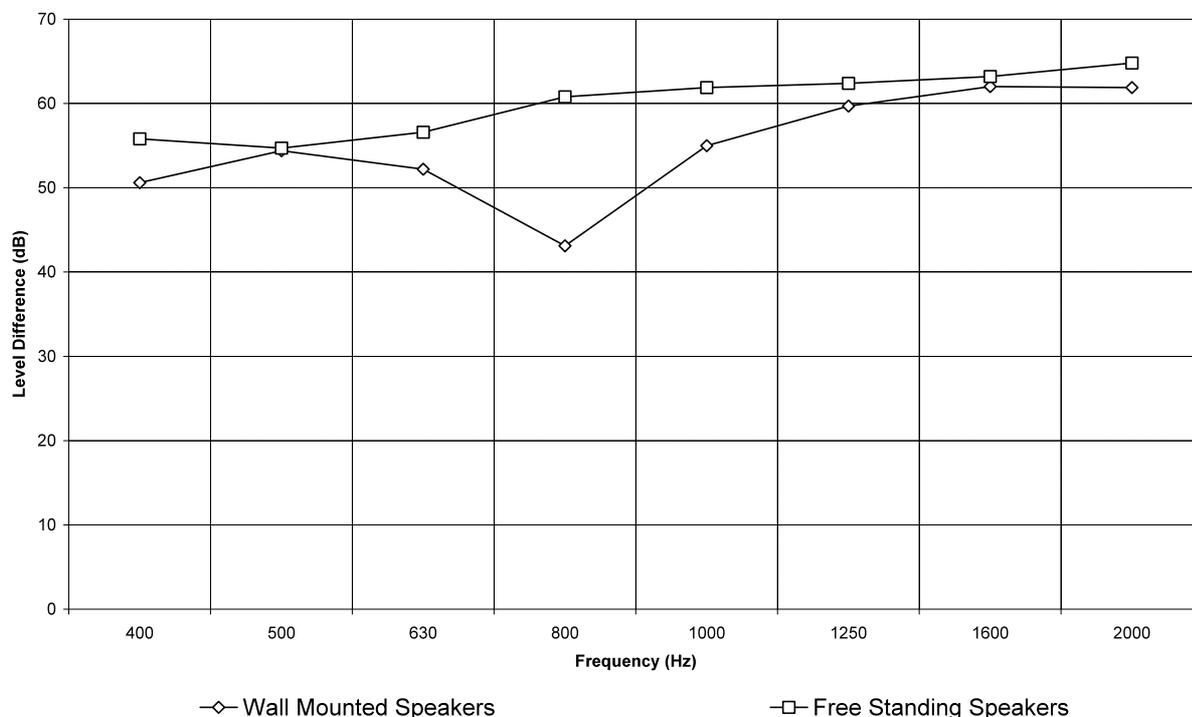
After continuous complaints, the venue was forced to remove all live music events from its weekly programme with immediate effect. The owners were left with the impression that the only serious way to contain the noise was to consider major structural improvements and had already begun exploring various 'soundproofing' materials to no benefit. As live music was the primary source of income for the establishment, something had to be done. PDA were appointed to get to the root of the problem and advise on the best approach forward with the ultimate goal being to get the license to provide live music back.

### **The assessment**

A visit to site was conducted outside of the typical operational hours. Noise and vibration based assessments were carried out in both the bar and the dwelling directly above. As part of the noise assessment, additional measurements were made with a separate free-standing sound system to determine the effect, if any, that the speakers which were bolted to the walls, had on noise transfer between the two areas. Both noise and vibration measurements concluded that too much noise was travelling through the flanking walls, which were common between the two premises.

### The results

Figure 1 below shows the room to room level differences between the wall and free standing speaker systems in the problem area between 400 and 1250Hz. It can be seen that by de-coupling the speakers from the wall, the level difference at 800Hz increases favourably by 17dB. With such a simple measure producing a huge increase in performance the solution was now clear.



**Figure 1: De-coupling the speaker from the wall resulted in a significant improvement in terms of noise level reduction.**

### The Solution

All the evidence gathered left PDA in no doubt that the bolting of the house sound-system speakers to the walls common between the bar and the residences above was creating a huge increase in flanking noise (noise travelling through common elements between source and receiver rooms).

As straightforward as the solution may seem, space was extremely limited in this particular establishment and free standing the house sound system on the floor was not an option. The speakers had to be wall or ceiling mounted. In order to maintain the functionality of the space, whilst keeping the improvements which free standing units would provide, PDA designed a series of 'spring mounts' individually tuned to meet the necessary isolation requirements.

### The Result

After a successful installation, both the clients, the council and adjacent residents were pleased. Noise complaints are no longer an issue with the council and regular 'open-mic' events are back and continue to be as successful as ever.

### Money Well Spent?

To some, the appointment of an acoustic consultant may appear to be a cost that isn't worth spending. Sadly, this attitude can result in the all too common situation where a consultant's expertise is required after a lot of money has already been wasted on ineffective measures.

The role of the consultant is to provide the best impartial advice and design. In the case of 'The Venue', the acquisition of PDA's experience brought savings through avoiding significant remedial works. They also had a true expert on their side who could speak fluently on noise matters with the council and ensure that the final solution met their specific standards. In terms of commercial viability, an acoustic consultancy which can get the right results first time will pay for itself compared to dubious soundproofing products that won't work at all.

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